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VOL. XVII. NO. 5.

MAR. 1, 1889.

PEACE ON EARTH
& GOOD WILL TOWARD MEN



CLEANING
IN

BEE CULTURE

DEVOTED
TO
THE
BEEKEEPER

& HOME INTERESTS.
MEDINA, OHIO
BY
A. BOOT

TERMS, ONE DOLLAR PER YEAR.

W. Conrad

ENTERED AT THE POSTOFFICE MEDINA, OHIO, AS SECOND-CLASS MATTER.

ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them. Patent-medicine advertisements, and others of a like nature, can not be inserted at any price.

Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions or more, 20 per cent; 24 insertions or more, 25 per cent.

On 48 lines (½ column) and upward, 1 insertion, 5 per cent; 3 insertions, 10 per cent; 6 insertions, 15 per cent; 9 insertions, 20 per cent; 12 insertions, or more, 25 per cent; 24 insertions or more, 33½ per cent.

On 96 lines (whole column) and upward, 1 insertion, 10 per cent; 3 insertions, 15 per cent; 6 insertions, 20 per cent; 9 insertions, 25 per cent; 12 insertions, or more, 33½ per cent; 24 insertions or more, 40 per cent.

On 192 lines (whole page), 1 insertion, 15 per cent; 3 insertions, 20 per cent; 6 insertions, 25 per cent; 9 insertions, 30 per cent; 12 insertions or more, 40 per cent; 24 insertions or more, 50 per cent.

No additional discount for electrotype advertisements. A. I. Root.

CLUBBING LIST.

We will send GLEANINGS—
With the American Bee-Journal, W'y (\$1.00) 1.75
With the Bee-keepers' Magazine, (50) 1.45
With the Canadian Bee Journal, W'y (1.00) 1.75
With the Bee Hive, (30) 1.20
With the Bee-keepers' Review, (50) 1.40
With the British Bee-Journal, (2.62) 3.25
With American Apiculturist, (\$1.00) 1.70
With all of the above journals, 6.40

With American Agriculturist, (\$1.50) 2.25
With American Garden, (2.00) 2.60
With Prairie Farmer, (1.50) 2.35
With Rural New-Yorker, (2.00) 2.90
With Farm Journal, (50) 1.25
With Scientific American, (3.00) 3.75
With Ohio Farmer, (1.00) 1.90
With Popular Gardening, (1.00) 1.85
With U. S. Official Postal Guide, (1.50) 2.25
With Sunday-School Times, weekly, (2.00) 2.25
With Drainage and Farm Journal, (1.00) 1.75
[Above Rates include all Postage in U. S. and Canada.]

FLAT - BOTTOM COMB FOUNDATION.



High side-walls, 4 to 14 square feet to the pound. Circular and samples free.

J. VAN DEUSEN & SONS.

5tf Sole Manufacturers,
SPROUT BROOK, MONT. CO., N. Y.

In responding to this advertisement mention GLEANINGS.



You can not look over the back No's of GLEANINGS, or any other periodical with satisfaction, unless they are in some kind of a binder. Who has not said—"Dear me, what a bother—I must have last month's journal and it is nowhere to be found?" Put each No. in the Emerson binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen, even though it were months ago.

Binders for GLEANINGS (will hold them for one year) gilt lettered, for 60 cts.; by mail, 12 cts. extra. Ten, \$5.00; 100, \$45.00. Table of prices of binders for any periodical, mailed on application. Send in your orders. A. I. Root, Medina, Ohio.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

Untested Queens

FOR \$1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delays as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.

*H. H. Brown, Light Street, Col. Co., Pa. 1tf89

*Paul L. Viallon, Bayou Goula, La. 1tf89

*S. F. Newman, Norwalk, Huron Co., O. 1tf89

*Jos. Byrnes, Ward's Creek, East Baton Rouge 1tf89

C. C. Vaughn, Columbia, Tenn. 21tf88

J. W. Winder, New Orleans, La. 7tf88

Wm. L. Ashe, Edwardsville, Mad. Co., Ill. 11tf88

J. M. Jenkins, Wetumpka, Ala. 9tf8

*Oliver Hoover & Co., Snyderstown, Northum-berland Co., Pa. 5-15d

*Abbott L. Swinson, Goldsboro, Wayne Co., N. C. 5tf8

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.

P. L. Viallon, Bayou Goula, Iberville Par., La 1tf89

C. W. Costellow, Waterboro, York Co., Me. 1tf8

R. B. Leahy, Higginsville, Laf. Co., Mo. 21tf88

J. M. Jenkins, Wetumpka, Ala. 3tf8

F. A. Snell, Milledgeville, Carroll Co., Ill. 4-5-89

Oldest Bee Paper in America—Established in 1861.

AMERICAN BEE JOURNAL,

16-page Weekly—\$1.00 a year.

Sample Free. THOMAS G. NEWMAN & SON,

925 West Madison Street, Chicago, Ill.

BEE-KEEPER'S GUIDE.

Every farmer and bee-keeper should have it. 15th thousand just out; much enlarged, beautifully illustrated, and fully up to date. It is both practical and scientific. Price \$1.50. To dealers, \$1.00 by mail to any address. In 100 lots, 50c off by freight. 17-15d

Address A. J. COOK,

Agricultural College, Mich.

In responding to this advertisement mention GLEANINGS.

POULTRY SUPPLIES.

Ground Beef Scraps, fresh and pure at all times. Pure Ground Oyster Shells, Cracked Poultry Bone, Bone Meal, and everything else in this line, of the best quality and at lowest prices. We have large facilities for the manufacture of Poultry Supplies. Send for trade price list. John Gardiner & Co., 21 N. 18th St., Philad'a, Pa.

In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 2tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange pure Brown Leghorn eggs and cockerels (Todd strain) for any thing useful. Write first. A. F. BRIGHT, 3tfdb Mazepa, Wabasha Co., Minn.

WANTED.—Two students for the coming season. GEO. E. HILTON, Fremont, Mich. 4-5d

WANTED.—You to send for my new price list of Imported and American Italian queens. Can ship as early as the earliest. R. H. CAMPBELL, 3tfdb Madison, Morgan Co., Ga.

WANTED.—You to send for my illustrated Price List of supplies; Bees, Queens, etc. 4-5d GEO. E. HILTON, Fremont, Mich.

WANTED.—To exchange for honey or offers, about 25 colonies of Italian bees, in new, movable-frame hives, frames 9½x12¾ inside measure; 8 frames to the hive; also one second-hand Barnes foot-power combined saw. CHAS. DORFMAN, Pittsburg, Tex.

WANTED.—To exchange one American Incubator, 250-egg capacity, about 50 nuclei, 2, 3, and 4 frame, 20 cts. each, about 50 Simplicity hives, 10 frame, \$1.00 each, for horse-power, corn-grinder, or any thing useful to a farmer. GEO. W. BAKER, 4-5d Milton, Wayne Co., Ind.

WANTED.—To exchange Italian bees for timber or a "Springfield roadster." L. HEINE, 3tfdb Bellmore, Queens Co., N. Y.

WANTED.—Bee-keepers in Missouri, Kansas, Nebraska, and Arkansas to learn something of value by addressing Rev. E. T. Abbott, St. Joe, Mo. 4-5

WANTED! Bee-Help. Will engage on favorable terms two young men, desirous of learning practical apiculture. None but strictly temperate need apply. S. I. FREEBORN, Ithaca, Wis. 4-7db

WANTED.—Situation in an apiary for the season of 1889, from 6 months to a term of years. 4-5d S. W. WHITE, Liberty, Clay Co., Mo.

WANTED.—To exchange one cutter-head, one dovetailing mandrel with saws, one six-inch rubber-belt, 30 ft. long; 50 ft. of three-inch rubber-belt, all as good as new, for bees or bee-keepers' supplies; also one six-inch Pelham fdn. mill. 4tfdb THOMAS GEDYE, Kangley, LaSalle Co., Ill.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address OTTO KLEINOW, 4tfdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange my new price list of pure Italian bees and Poland-China swine for your name and address written plainly on a postal card. N. A. KNAPP, Rochester, Lorain Co., O. 5678d

WANTED.—To exchange 25 new improved chaff hives (Root's pattern), packed ready for use, and about 400 fine brood-combs, at 10c each, for bees. Correspondence solicited. Address 5-6d W. H. SWIGART, Dixon, Ill.

WANTED.—All who are interested in thoroughbred poultry to send for my new illustrated circular. Valuable information given free of charge. S. P. YODER, 5-6d East Lewistown, Mahoning Co., O.

WANTED.—A woman to do light housework, and help some with bees. Location in prohibition town. Religious services every Sunday. 5d J. B. MARSH, Collinsville, Ala.

WANTED.—Japanese buckwheat in exchange for bee-keepers' supplies or cash. 5tfdb M. H. HUNT, Bell Branch, Wayne Co., Mich.

WANTED.—To exchange my 20-page price list for your name. W. D. SOPER, Jackson, Mich. 5tfdb

WANTED.—To exchange a Whitman fountain pump for a small-sized printing-press. 5d J. B. MARSH, Collinsville, Ala.

WANTED.—Position, charge of on shares, or would purchase an apiary in Kentucky, Tennessee, Missouri, or Texas. Address 5d APIARIST, Box 226, Williamson, N. Y.

WANTED.—Bee-supplies, books, offers, for eggs of R. C. B. Legh. or W. P. Rocks. 5d W. W. KULE, Pottstown, Montg. Co., Pa.

WANTED.—To exchange bees in Simp. hives, for Japanese buckwheat, Jersey cows, single-top buggy and harness, new; farm wagon, supplies. L. D. GALE, Stedman, Chaut. Co., N. Y.

WANTED.—To exchange one set of Bunyan's Practical Works, 8 vols., new; one set of D'Aubigne's History of Reformation, 5 vols., new; Life of Christ, 1 vol.; Our Country, its Past, Present, and Future, for extracted honey or apiarian supplies. STEPHEN ROESE, 5d Box 91, Maiden Rock, Wis.

WANTED.—A good hand to look after the bees, and to work in the garden and greenhouse the rest of the year. GEO. M. KELLOGG, 5d Pleasant Hill, Mo.

WANTED.—To exchange Empire State potatoes for bee-supplies or Barnes foot-power combined saw. FRED MYERS, Sharon, Pa. 5d

WANTED.—To exchange beautiful pine-trees, 1 to 2 ft., valued at 5 cts., for any thing. Write to F. C. MORROW, Wallaceburg, Ark. 5d

To exchange, one set of International Cyclopedia, edition 1888, 15 volumes; also one set Scott's Commentary on Bible, six volumes, both in good order, at bargain, for extracted honey or offers. A. H. VAN DOREN, Mons, Virginia, 5tfdb

Will exchange Nursery stock, shipped from Garrett's Nursery, Mansfield, Ohio, for full colonies or bees by the pound in May. 5d J. B. MASON, Mechanic Falls, Me.

WANTED.—Young man to work at market gardening and do marketing. Must furnish reference as to honesty, etc. Will have opportunity to learn bee-keeping and the marketing of honey. Will pay right party \$20 per month and board. 5d W. HICKOX, Rockport, Ohio.

WANTED, you to send for my New 1889 Price List, illustrated, free. Best section-case on earth. Bees, Queens, etc. FRANK A. EATON, Bluffton, O.

THE RAMBLER

Says to people in general and to bee-keepers in particular, that he has something to sell. Our blackboard saves steps all summer, and is a comfort every time it is used. Size, 1½ x 3 feet, and crayons as long as your finger, all on a roller, mailed for 25 cts. Also recherche (that means boss) sleeve-protectors, absolutely water-proof. They are not little stingy things that come half way to the elbow, but protect the whole arm. Mailed for 25 cts. A whole suit of clothes, weight only 1 lb., will keep the entire person clean, zhusht a fit, with more or less handy pockets. "Handy" buttons hold them snug around wrists and ankles. By mail for \$1.50. Several other recherche novelties and bargains described in our circulars. Address

THE RAMBLER,
Hartford, Wash. Co., N. Y.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfdb

SECTIONS, BEE-HIVES —and SUPPLIES!

White basswood V-grooved section, \$1.90 to \$3.15 per M. Parties wanting 3000 or more, write for special prices. Sample and price list free. Address

GOSHEN BEE-SUPPLY CO.

Goshen, Elkhart Co., Ind.

☞ In responding to this advertisement mention GLEANINGS.

FOR SALE IN VIRGINIA.

Early Queens, Nuclei, and Full Colonies. Also Hives and Supplies.

Write for what you want. 5tf
J. C. FRISBEE, Suffolk, Nansemond Co., Va.

Sea-Shells! Sea-Moss!

A 1-pound package of beautiful shells and sea-moss sent postpaid to any address for one dollar. Half-pound package, 50 cts. Address

5d MRS. C. W. BUNKER, Oceanside, Cal.

☞ In responding to this advertisement mention GLEANINGS.

EGGS FOR HATCHING, from choice S. C. B. Leghorns; can fill all orders promptly, great and small. Circumars free. A few O. T. C. pigs for sale. 4l-5d
FILLMORE DECKER, New Florence, Westm. Co., Pa.

EARLY QUEENS. I will send young queens by return mail from this date, Jan. 25, 1889.
5-6d MRS. M. A. NEEDHAM, Sorrento, Lake Co., Fla.

POTATOES. Four choice new varieties, SUMMIT, FEARNUGHT, DELAWARE, and POTATUCK, 40 eyes of each, postpaid \$1.00. I have mailed potato-eyes as far as Wash. Ter., and never had a report of failure. A collection of RARE SEEDS, postpaid, 30c. Send now for catalogue of SEEDS, PLANTS, BEES, and QUEENS. 5-6-7d

CHRISTIAN WECKESSER,

Marshallville, Wayne Co., Ohio.

☞ In responding to this advertisement mention GLEANINGS.

CLOSING-OUT SALE!

I am going to Montana, and will therefore sell at low figures my apiary of 75 colonies of Italian bees, in lots or by the single hive.

A. A. FRADENBURG,
Port Washington, O.

BEE - SUPPLIES

AT DIFFERENT PLACES,

TO BE DISPOSED OF AT A SACRIFICE.

These are all new and first-class goods, which, for various reasons, are on our hands, away from home; and to dispose of them we offer them very low. If some of our readers, not far from where the goods are, need them, this is a good opportunity to get a bargain. Indicate which one you want, by the number as well as name.

- No. 1. At Eureka Springs, Carroll Co. Ark.
100 wide frames, to hold eight 1-lb. sections. Value \$2.00. Will sell for \$1.50.
- No. 2. At San Marcos, Hays Co., Texas.
5000 prize sections, 6¼ x 6¼ high. Value \$30.50. Will sell for \$17.00.
- No. 6. At Lawrenceburg, Tenn.
One No. 1 Honey-extractor, for frames 1½ x 12½ or less in depth. Value \$6.00. Will sell for \$4.50.
- No. 7. At Yorktown, Delaware Co., Ind.
11 Heddon slatted honey-boards double bee-space. Value \$1.00. Will sell for 75 c.
- No. 9. At Higginsville, Mo.
One 4 H. P. engine and boiler complete, used only five months. Worth new, \$275. Will sell for \$195.
- No. 11. At Johnson City, Washington Co., Tenn.
One honey-extractor that will take frames 1½ x 16, or smaller. Value \$7.00. Will sell for \$5.00.
- No. 16. At Lochiel, Ind.
20 slatted honey-boards to use between brood-chamber and T supers on Simp. hives, bee space top and bottom as we now make them. Value \$1.80. Will sell for \$1.50.
- No. 17. At Berlin, Wis.
One 36-inch Exhaust Fan, second hand. It was used about 8 years in our factory. Boxes have been re-babbitted and the fan is in first-class running order. A new one this size is worth about \$100.00. We will sell this for \$25.00. It is a bargain to the one who is in need of one this size.

A. I. ROOT, Medina, Ohio.

PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	to Oct.
Select tested.....	\$4 00	\$3 75	\$3 25	\$2 75
Tested.....	3 00	2 75	1 75	1 50
Untested.....		1 25	1 00	1 00
6 Untested.....		5 50	5 00	4 50
12 Untested.....		9 50	9 00	8 50

Contracts taken with dealers to furnish queens by the week at special rates. Address

J. P. CALDWELL, San Marcos, Tex.

☞ In responding to this advertisement mention GLEANINGS.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are **FIRST QUALITY**, and the pieces are of such variety of size as to furnish anything you want. Price 1½ cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

- 8 | 10 rolls, 67 sq. ft. each: 1 each of 66, 65, 64, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
12 | 29 rolls of 100 sq. ft. each; 4 of 98, and 1 each of 102, 97, 92, 75, and 44 sq. ft.
16 | 4 rolls of 133 sq. ft.; and 1 each of 132, and 130 sq. ft.
24 | 13 rolls of 200 sq. ft. each.
26 | 80 rolls of 216 sq. ft. each, and 1 each of 215, 210, and 204 sq. ft.
28 | 44 rolls of 233; 3 of 224; 1 of 257 sq. ft.
34 | 6 rolls of 283 sq. ft.
38 | 9 rolls, 316 sq. ft.
| 1 roll, 42 inches, of 350 sq. ft.; 2 of 44 in., 366 sq. ft.; 1 of 46 in., 121 sq. feet.

THE FOLLOWING CLOTH IS BLACK.

- 40 | 4 rolls, 333 sq. ft. each.
42 | 7 rolls, 350 sq. ft. each.

A. I. ROOT, Medina, O.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls — ¾ ct. per Square Foot.

Five or more pieces, 5 per cent off; ten or more, 10 per cent discount.

By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.

Inches wide.	Inch mesh.	No. of Wire.
60	2	19 495, 445, 335, 330, 325, 285, 280, 240, 220, 180, 165.
72	2	17 195.
72	2	18 720, 672, 636, 618, 558, 510, 438, 270, 252, 222, 168, 162, 156, 156, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. A. I. ROOT, MEDINA, O.



Vol. XVII.

MARCH 1, 1889.

No. 5.

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00;
10 or more, 75 cts. each. Single num-
ber, 5 cts. Additions to clubs may be
made at club rates. Above are all to
be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS
than 90 cts. each. Sent postpaid, in the
U. S. and Canadas. To all other coun-
tries of the Universal Postal Union, 18
cts. per year extra. To all countries
not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES. NO. III.

DISTANCE APART.

IF you have only one apiary, you may not feel greatly interested as to the proper distance at which to locate apiaries but when you come to locate your first out-apiary, you will give the matter at least a little thought, but only so far as to feel safe that the two apiaries shall not seriously interfere. When, however, you contemplate any thing beyond the first out-apiary, the thought will likely occur that you do not know just where the limit may be, and that you may as well plan quite a little ahead, and then you may become intensely interested to know just how far apart a series of apiaries should be planted. If the field is all clear to an indefinite distance, you can plant them ten miles apart and feel easy; but then the distance to travel from one apiary to another would be quite a serious matter. So the thing you will be interested to know is the least possible distance at which they may be planted without interfering much, for a little interference at the outskirts of each range, where the flight is longest and the bees fewest, will be more than compensated by the shorter journey from one apiary to another. Just exactly what is the largest profitable range to allow an apiary, and the most profitable distance at which to plant a number of apiaries, is probably known to no one, and it is not likely that any one will ever have positive knowledge about it.

On planting my first out-apiary I supposed I

should have it about five miles away; but as a matter of convenience I made it three, and I have gradually come to the conclusion that three may be about right—a conclusion that is confirmed by the experience of others. I asked my friend Capt. Hetherington, "About what is a fair distance apart for apiaries?" He replied, "Our own are located at about an average distance of three miles. In locating we are governed in a measure by the lay of the land—the bees will make longer flights, and gather honey to greater advantage, when they follow the valleys. I think few bee-keepers appreciate the importance of this consideration." I confess I never thought of it before, and I have no doubt the captain is right.

P. H. Elwood gives an answer that does not conflict. He says, "I think about three miles. It depends somewhat on the lay of the land. I have an apiary two miles from home, in a parallel valley. Hetherington has one a little less, on the brow of a steep hill."

In addition to the "lay of the land," other considerations may have something to do with the matter of location; but in order to get at a general rule we will consider the country a dead level, uniform in every respect. The first thought may be to plant an apiary first north, then south, then east, then west. That will not do. It must be remembered that the range of flight from an apiary is in the form of a circle, not a square. In the next issue we will speak of this same matter further.

Marengo, Ill.

C. C. MILLER.

HOW DO BEES RIPEN HONEY?

FRIEND DOOLITTLE GIVES US THE RESULT OF HIS OBSERVATION, AND DRAWS SOME CONCLUSIONS.

A FEW days ago a friend called in, and, while talking about bees, honey, etc., as most bee-keepers will when they get together, he said to me, "What do you think of the idea which some advocate, that bees can not properly ripen their honey when it is stored in deep cells or in old comb?"

I replied something like this: That I did not think that the advocates of such a theory had any solid ground to stand on in advocating it; for, unless I am greatly mistaken, bees reduce their thin nectar, as brought in from the field, in just the same way in this, the nineteenth century, as they did thousands of years ago, before each bee-keeper had a sheet of foundation to place in a section so that they might have it all so handy for the heat to pass over shallow combs. If nectar can not be properly evaporated in deep combs, what have the poor bees done all of these thousands of years, previous to the advent of foundation, to get their honey fit to live on after the first year in which they built their combs, as at that time they had their new combs to build, so of course had shallow cells. Then how comes it that, as a rule, we find a much better grade of honey in old hives in the fall of the year than we do in hives having all new combs? for every bee-keeper whom I have ever talked with on this subject has been free to admit, that the best honey he ever ate came from combs which had been in the hive for some years. It seems to me that the reason for such a theory about shallow cells ripening honey better than deep ones has been sprung on the public from an ignorance of the principle by which the bees reduce their nectar to the thick honey which we find in all hives after it is sealed. Honey is so manipulated by the bees, that the change from raw nectar to thick honey comes through the manipulation rather than by its being stored in shallow cells; hence the depth of the cell in which it is stored has nothing to do with the matter whatever. Let us look inside of a hive during a large basswood yield, and see if we can not learn something. It is now 2 o'clock P. M., and we find that, in handling the combs, if we hold them a little out of perpendicular the nectar will run out, while a sudden jar daubs things generally by the amount which falls from them. When we handle the brood-combs, an examination will show us that, scattered all through the brood, are cells of this thin honey. If we now handle the sections, we find that, although they are nearly all unsealed, very little honey will run out of them, and none from the deeper cells, which are the ones from which it should flow, if there be anything in the theory that honey evaporates fastest in shallow cells. Now come with me to this observatory hive. You will remember that, when we were here at 9 A. M., we saw every bee which came in with a load of honey give it to another bee, instead of putting it into a cell, as we are told that field bees do. You will also remember, that these bees which took this nectar from the field bees seemed to hold it, for we saw very few of them putting their heads into the cells. Now we see them taking the nectar the same; but instead of holding it as before, we see these inside workers putting their heads often into the cells,

and find honey in the midst of the brood the same as we did at the other hive, while at 9 A. M. these same cells were empty. By this you see that as long as the young bees could hold all of the nectar gathered by the field bees, they did so; but when more honey than this came in, these young bees were obliged to place it in the cells, and in doing so they used the empty cells in the brood-combs first, which are scattered around among the brood; while if they are still further crowded they will next use the store comb; and when the rush of honey is very great I have known them to put it in an empty comb outside of the hive, in some instances where I left such a comb by carelessness, near the entrance. Night comes on, and we light a lamp and go to our observatory hive. Now lie down in such a position that you can keep steady for quite a length of time. Do you see those bees which are facing this way, yet hanging by their legs to other bees? Do you see them straighten out their proboscis and draw it back again? and do you see that drop of nectar sparkle in the light when the proboscis is thrown out? What do you suppose they are doing? Suppose I tell you that they are only allowing the heat to pass over shallow cells, so that the nectar may be ripened, will you believe me? No, you would not. Well, what are they doing? for you see that all of the bees thus hanging are at this kind of work. Oh! it has just come to me. These are the "loafing bees" we hear so much about, which always hang around in all of the pretty lounging-places which are left between the combs and between the ends of the frames and the hive, which the advocates of closed-end frames tell us about, which should not be; at least they say so. Well, joking aside: These bees are evaporating nectar in the good old-fashioned way, just the same as they did it when Adam and Eve dwelt in a garden, when God pronounced all of his works good, and it doesn't matter how much you try to help them by giving shallow combs, for they will always do it the same, just to be contrary, I suppose. Now, come to this hive which has sections on, closed up at the sides with glass. Don't you see the same thing going on here, only to a far greater extent? Many a night have I lain by the side of a hive, witnessing the bees thus reduce the thin nectar brought in during the day, so that it would be fair honey in the morning. Don't believe it? Well, what are they doing then, and what is the reason that, in the morning, before any more nectar of any amount comes in, none will jar from the combs as it did yesterday afternoon? and why do we see plenty of young bees putting honey in the cells in the morning, which honey is of very fair consistency, when none at all is coming in from the fields? We must account for this in some way, and I firmly believe that the process which we have seen is the way the bees have of reducing their nectar to honey. Of course, the heat of the hive has much to do with it, for, as the nectar is thrown out on the proboscis, it needs heat to carry off the particles of water, which more readily float away from these small drops of honey which are being thus stirred over than would be the case were the whole mass in cells, whether deep or shallow. Now come into my honey-room and see if you can tell which sections were full of comb when put on the hive, and which had only foundation in them. What! can not tell? Neither can I, except as the sections in which the combs were are seen to have a little

more propolis on them; and after years of careful watching I fail to see any difference as to which will grow watery, or sweat the quickest; and I know that I can get one-third more honey from a hive having comb supplied them than I can from one which has only foundation. All will sweat if the honey-room is damp and of a low temperature, while all will be growing better if the room is kept right. Reader, while the above is not well written there is more truth than poetry in it.

G. M. DOOLITTLE.

Borodino, N. Y., Feb. 18, 1889.

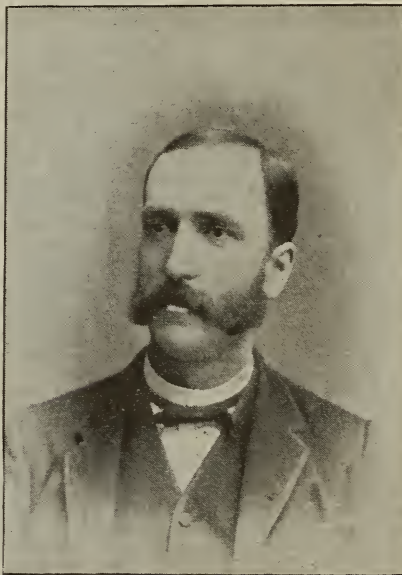
Friend D., it is very certain that bees do, during the night time, get rid of a very large amount of water contained in the nectar as it is brought in from the flowers. When the hive is large, and the colony very populous, with the cracks and joints all closed, so there is no ventilation except at the entrance, I have seen a pool of water collect around the entrance on the alighting-board, sufficient for the bees to fall into when they started out in the morning. This occurs especially after a cool night, so that the alighting-board becomes so cold as to condense the moisture from the warm air that is blown out of the hive by the ventilating process. Now, although it may be true that the bees do evaporate a large amount of water from their nectar by the process you mention, I can not think it is *all* done in that way, because the sheets of new honey, nearly ready to cap, oftentimes look like the surface of a liquid, only the contents of each cell present a convex shape, so as to look like a lot of beads laid in a tray. Arranging the honey in this way offers such a facility for rapid evaporation that I can not but think that this is a part of the process, and I can not see how they can operate in the same way where the cells are too deep. In old box hives we sometimes find cells two inches deep or more. I think it is pretty certain that such combs are not profitable; for if, during a great flow of honey, comb of two inches should be filled with raw nectar, what an amount of labor it would be to evaporate it, no matter which way the bees did it, compared with sheets of ordinary worker comb! The old honey you speak of, found in old box hives, I have always supposed owed this fine quality to its age, while the honey in new combs or shallow combs is almost always of the previous season's storing. Had you attended the conventions where this matter of partly filled sections was discussed, friend D., I hardly think you would be so severe on those who have had an experience different from your own. Old veterans, who sell honey by the ton, even such men as friend Elwood, said, if I am correct, they were obliged to call all honey second grade that was made from sections partly filled out the year previous. Of course, a good deal depends on how much difference between first and second grade in price. Now, I think the best way to get at the truth of this matter, especially as it is one in which doctors disagree, is to get as many testimonies as we can in the shape of reports from those who have experimented carefully. There are several reports in this issue. I am sorry to say that a good many of them have not

tried *both* ways, and at the same time been careful to use a few partly filled sections in every hive by way of a decoy, to induce the bees, especially *Italians*, to go above and store promptly. See the report of C. B. Jackson, in this issue.

W. Z. HUTCHINSON

AS AN EARLY GLEANINGS CONTRIBUTOR.

IN GLEANINGS for Dec. 15, among other biographical sketches was that of the subject as above. The portrait was a wood-engraving. Since that time, friend Hutchinson has had one of those Ives reproductions made from a recent photograph, for his own paper. As this is much superior to the wood-engraving found in our biographical sketches, we take pleasure in reproducing it here.



*As ever yours,
W. Z. Hutchinson.*

Friend Hutchinson began to write for GLEANINGS a few years after it started, and as he grew up, so to speak, with this journal, we feel more than an ordinary interest in him, and a few additional facts concerning his career as a writer on apicultural subjects will perhaps be of interest. The first item from our friend which appeared in GLEANINGS print will be found on page 247 of the volume for 1877. This was only a short note expressing his pleasure over an extractor we sent him. The next we see of him in print—at least in the pages of GLEANINGS—is in our issue for Jan. 1st, 1878. At this time he began a series of articles full of his “experiences.” These were

so valuable to the general bee-world that we decided to make them the leading articles of the subsequent issues. His intense personality shines from every one of these letters. Beginning in bee-keeping early in 1877, with four colonies, we find he made his bees pay for all such improvements as the growth of the apiary seemed to necessitate. As he was paying for a home, he had no money to spend on "improvements." Most of the necessary fixtures, he contrived somehow to manufacture for himself. All this he described in his early articles. To illustrate how he worked with his bees, and how he economized, we copy from one of these early papers, found on page 391, of 1878. After one year of real experience with bees, he says at the close of an article:

A SORT OF "HOME" PAPER.

I am a young man who has just bought and partly paid for a small farm. We, wife and I, are working hard to finish paying for our home; and we sometimes have to "figure pretty close," in order to obtain my "bee fixings." For instance, I had long wished for the back volumes of GLEANINGS, but had never seemed to have the money to spare to buy them; at last, however, by going into partnership with a neighbor, and earning my half by getting up a club, they were obtained.

In spite of financial difficulties, under which I commenced bee-keeping, I have prospered in it exceedingly well; perhaps my love for the business has had something to do with my success. I sometimes wonder if I do not think *too* much of my bees. For instance, I wore a suit of clothes last spring until I was ashamed of them, in order to save money to buy a swarm with an imported queen. What do you think, Novice? Do you think it is possible for a bee-keeper to be *too* devoted to his business?

And there is one thing more that I would like to ask Novice, and that is, don't you think it is a good thing for some of us enthusiastic young bee-keepers, that we—well, haven't any bank account? If we had, we would probably buy a whole lot of bees, all the "modern improvements," and then—why, then go into "Blasted Hopes," to be sure.

There, my first year's "experience" is finished, and if it has helped any one else in their "first year's experience," it has "fulfilled its mission."

These articles continued to be the leaders until 82 consecutive numbers were issued, ending Dec. 1, 1886, with perhaps two exceptions toward the close of that year. From this time on, his name occurs only occasionally, and finally dropped out altogether. During this time he wrote more or less for the *American Bee Journal*, *American Agriculturist*, and the *Country Gentleman*. Jan. 1, 1888, he started a bee-journal for himself, entitled the *Bee-Keepers' Review*. It is hardly necessary to explain the features of the *Review*, as most of our readers, if not all, have been acquainted through our advertising columns.

GOLDEN COREOPSIS, OR SPANISH NEEDLE.

63½ LBS. OF THIS HONEY AS THE PRODUCT OF ONE COLONY IN 6 DAYS, AND 202½ LBS. FROM 43 COLONIES IN 10 DAYS.

THE above name is now to be seen on many labels that adorn my buckets which contain honey gathered from coreopsis, or Spanish needle. I have added the word "golden" to embellish the name, as it were, and to give it a better send-off. Do you not think the name appropriate?

Something over a year ago I wrote a letter for

GLEANINGS, claiming that the honey gathered from this plant is superior to that produced from other fall flowers, and that it should rank among the very best grades, and command the same price in the markets as clover and linden honey. My peculiar location has, fortunately, placed me in a position to pretty thoroughly understand the nature of this plant, and the quality of the honey it produces. Located at the foot of the bluffs of the Illinois River, there is a broad expanse of low marshy lands to the east and south, from three to five miles in width. These lands are subject to overflows from the river once a year, which usually take place in early spring. This renders a large portion of the soil unfit for tilling purposes; and the consequence is, the Spanish needle has secured a permanent foothold, almost to the exclusion of all other plants; and early in September they begin to open their beautiful petals, and in a short time whole districts are aglow, and their dazzling brilliancy reminds one of burnished sheets of gold. It is now, should the weather prove favorable, that the bees revel in their glory, and the honey comes *piling in*; and the beauty about this kind of honey is, it needs but little "boiling down," and the bees no sooner fill their cells than they are cured and ready to seal. This is one great advantage, and saves the bees lots of labor, and makes the storage of honey more rapid. I had one colony of bees that stored 63½ lbs. of honey in six days; another one, 86 lbs. in nine days, and 43 producing colonies netted me 202½ lbs. in ten days—an average of 47 lbs. to the colony. This honey, though not quite as clear as clover or linden, is of a golden hue, exquisite flavor, and very fine body, weighing fully 12 lbs. to the gallon, and, as previously stated, I can not see why it should not rank in grade and price on the market with clover and linden honey.

So far as my market is concerned, there is no honey so universally liked by the consumers as my "golden coreopsis;" in fact, not one word of complaint has ever come back to me from this honey, save one. A neighbor ceased buying it; and when questioned as to why, he stated, "My children eat it up too fast." I am now running a peddling-wagon, and my salesman states he can sell more honey going over territory he has previously canvassed than to hunt up new routes. This certainly speaks well for this kind of honey. I have sold over 4000 lbs. in my home market this season, and the demand seems to be on the increase; and I believe if apiarists will locate their bees so as to get the benefit of these large areas of coreopsis they will not only be conferring a boon on their fellow-man, but will reap a financial reward for themselves. Another word in favor of the coreopsis honey: It is less inclined to granulate; and at this date there is but little sign of granulation, while my two barrels of linden honey is as hard as New Orleans sugar.

J. M. HAMBAUGH.

Spring, Brown Co., Ill., Jan. 21, 1889.

I believe you are about right, friend H., in regard to the Spanish-needle honey, although with us it does not go off like basswood and clover. I do not suppose that anybody will think of planting Spanish needle, but we can certainly do as you say—move our bees to great swamps and marshes, where may be found acres upon acres so full of bloom as to make it appear as if the ground were covered with snow, said snow

being of a bright yellow instead of white. In traveling on the cars I have frequently witnessed these great masses of bloom, and at times it fired me with enthusiasm to get some bees and set them close on the margin of these swampy wastes. I did it once at the foot of a lake near us. The bloom was not as full as you have described, but the bees built comb and stored honey right away, when those that were left at home were consuming stores and doing nothing. Now, then, who knows where there is a big patch of Spanish needle? and will you make preparations to move your bees near it, when the time of bloom comes?

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

THE old artificial-honey dodge has come up again; but as the author does not put any date on his circular, we can't tell whether it is old or new. The circular commences: "A work of ten years just completed! A fortune for you—will you take it? World's wonders; or, how to obtain riches!" There are thirty or forty secrets advertised for getting rich. The only one which concerns us principally, however, is the following:

ARTIFICIAL HONEY.—Equal to bees' honey, and often mistaken by the best judges to be genuine. It is palatable and luxurious; costs 8 cents a pound to make, and will sell for 16 cents per pound, while the bees' honey sells from 25 to 35 cents. Agents make money fast by selling the recipe to boarding-houses, stores, and private families at \$1.00 each. In average territory you can easily sell ten recipes a day for \$1.00 each, \$10 clear profit. One agent writes: "I average a recipe at every sixth house."

"Luxurious," no doubt, and costs only 8 cents a pound to make. It happens, however, that *good honey* has been sold in considerable quantities until quite recently at 8 cents per pound; but bees' honey does not sell, nor has it sold for from 25 to 35 cents a pound, for years. The swindling sheet referred to contains on one side in big letters, the address of L. W. Lincoln & Co., 89 Aberdeen St., Chicago. I hardly need tell our readers that this is only a rehash that has cropped out every now and then for at least 30 years. When I was in my teens I sent a dollar in answer to a similar advertisement, and obtained a recipe for making artificial honey, and another one for silver plating, and something else thrown in. All such offers of valuable recipes for a certain sum of money we may safely pronounce humbugs and swindles. All recipes of any value may be obtained in our recipe-books; and a dollar nowadays pays for a pretty good-sized recipe-book. L. W. Lincoln & Co., aside from offering recipes, offer to sell their agents county rights at the very low price of only a dollar for a county. What *right* have they to give *rights* to certain counties, pray tell? A search through Dun & Co. fails to find any L. W. Lincoln & Co. in Chicago at all. No doubt, however, somebody is on the watch for the dollars when they come in for the secrets or county rights.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

PERMIT me to call your attention to the inclosed article, which I clip from an Eastern paper. E. H. BARTLETT.

Mt. Vernon, O., Jan. 3.

I will explain to our readers that we wrote to friend B. at once, to give us the name of the Eastern paper containing the clipping. As he has not done it, or, at least, we have not received it at the present writing, Feb. 18, we give the clipping below:

BOGUS HONEY.

During the year 1865, or thereabout, I was walking on the streets in Baltimore, Md., and my attention was called to what appeared to be a beautiful specimen of Vermont honey, packed in boxes, and of the most beautiful clear liquid in the cells of white-looking comb. It attracted the attention of every one at the time, as the nicest honey that had ever been in Baltimore. But some time afterward it fell into the hands of an analytical chemist, who found out that the comb was made of paraffine, and the liquid of glucose syrup (made out of corn starch). The paraffine was made in imitation of the honey-comb, by some mode of pressure, by models prepared for the purpose, and the liquid glucose syrup had been made to fill the cells. Paraffine is now prepared from the refuse products of petroleum, when it is being refined, and the market is controlled, absolutely, by the "Standard Oil Trust," who can well afford to let it go on the "free list," as there is much more made in this country than anywhere else. This substance is like the most beautiful white wax, and makes candles like the purest spermaceti. I commend it to the attention of the committee having in charge the matter of "adulteration of food," etc., as I believe the ingenuity, sharpness, and invention, quite equal, if not superior, to that presented in the wooden nutmeg and the maple hams made in Connecticut.

Respectfully, PAUL PRY.

I suppose I hardly need tell our readers that we are prepared to pay "Paul Pry," or any other man who will show us the above-described operation going on, \$1000. The whole story about the analytical chemist is false from beginning to end; and if any of our readers can help us to hunt up the author of these falsehoods, we will hold him up to the gaze of every man; and we ask every friend who has seen the above in any paper, to carry or send the editor a copy of this issue of GLEANINGS. We will furnish you as many numbers as you want. If the editor who has given place to the above will not recant, we want the privilege of holding him up to the gaze of every truth-loving man or woman.

Here is another:

Here is another crank. What shall we do to stop this nonsense? There ought to be a law to protect bee-keepers. M. S. ROOP.

Council Bluffs, Iowa, Feb. 11, 1889.

A NEW SWINDLE.

The *Democrat* says a new swindle is said to have been discovered at Oskaloosa, by a woman coming in a drug-store and buying a half-ounce of "attar of roses"—a butyraceous oil of delicious fragrance, which separates itself from the rose-water during the distillation of dried petals of roses. A reporter heard this order, and his curiosity became strong as to why she should want so much of this expensive oil—retailing at from \$10 to \$15 an ounce. After much investigation he found that she used it in

the manufacture of "pure" honey. Syrup made of the proper consistency and color—an easy undertaking—with enough of this oil added to give it flavor, an article in all appearance, smell, and taste, so closely representing honey as to fool the most expert, and thus at a cost not to exceed 3 or 4 cents per pound to the manufacturer, this bogus honey is sold in this market as straight, pure strained honey.

Now, friend R., why didn't *you* tell us what paper you found the clipping in? We gather from the reading on the other side that it is a temperance paper, and the temperance paper seems to indicate that some Democratic paper first started the lie. I hope all good Democrats will help us to hunt up and straighten out our Democratic brethren. It is pretty clearly evident that some wicked sinner in the shape of a reporter is writing these things up; and the publishers of the papers he sends them to are foolish enough to believe them, and perhaps pay him for his sensational scares. Another thing, this statement is a slur on the character of all womankind. Think of a woman buying attar of roses to humbug the public! Then, again, the statement shows falsehood on the face of it. The idea that attar of roses, added to syrup of the proper consistency, should make it smell and taste so like honey as to "fool" an expert! No doubt there were fools around about that time, but I am sure it was not one of the fair sex, nor was it the general public at large that were fooled or humbugged by any such mixture. Now, friend R., may we trouble you to take this, or to send it to the editors of the paper from which you made the clipping, or the Democratic paper that first published it? Let us trace them back to the fountain-head, and get at the seat of the mischief if we can.

CARRYING BEES INTO THE CELLAR.

S. I. FREEBORN'S METHOD.

WE think we have a simple device for carrying bees into the cellar that will rather surpass friend Miller's rope. It is what we call a hand-barrow, made of two boards about 6 ft. long and 1 ft. wide, worked down to handles at each end, of the right size to be convenient to take hold of with the hand, some-

thing like this. To these we nail cross-pieces, making our barrow of a convenient width to set the hives on crosswise. This will hold three hives, but the number can be gauged by the weight of the hives and the strength of those carrying them. Some of the advantages of this kind of a barrow are, that, having the weight on the hands and arms, enables one to humor the motion, and prevent sudden jars that we could not prevent with the hive held firmly against the body, as we have to where we carry a hive alone. Its advantages over the wheelbarrow are, that it jars less, and you can get in and out of places that you could not with the wheelbarrow, and that, in the event of bees crawling out, they are not so apt to annoy us by crawling up our sleeves and other places where we do

not want them; and, also, we can keep the hives level while taking them in. This is quite a consideration when recently fed, as the added frames would likely be loose.

We noticed here the same thing that our friend Miller did at his place—that the bees did not frequent the grapes the past season nearly as much as usual. We think one reason for this lies in the fact that it was a very dry year, and fine for grapes. The weather was so favorable that very few cracked or burst their skins. May was a very cold month, and no doubt killed off a large per cent of the queens, or mother-wasps, making that insect very scarce, to the benefit of the grape crop. The little round holes spoken of, made with such regularity in the grapes, we have lately attributed to a little brown sparrow. We have not seen them in the act, but have frequently frightened them from the vines. On examination we found grapes freshly punctured. It seems to have been done by something with quite a long bill, and strength to use it.

Ithaca, Richland Co., Wis. S. I. FREEBORN.

MY VISIT TO CALIFORNIA, AND SOME OF MY MISTAKES.

A. I. ROOT TAKEN TO TASK BY HIS FRIENDS.

MR. ROOT:—You owe a big apology to the beemen of Santa Barbara. After I and others gave you an invitation to come here you sent a note accepting our invitation. I put right into the city, saw two of the prominent men in the business, told them to work the thing up for your reception, spoke to one of the aldermen to take you by the hand, and show you around the city, to see our fine public buildings, water and electric works, etc. I went home, filled our larder with the good things of this life, hired an invalid (for I was busy) for one month to see that the cart and buggy were well oiled, and the horses well fed, so that, at a moment's notice, you could be run out to any point of interest; kept the best room in the house tidied up, and even the organ tuned up, all for your reception, and only to come to Ventura, and then turn back, when one hour's ride (4 bits) and an apology would have been satisfactory. My reason for not writing sooner is, I was so mad I was afraid I might say something unbecoming. I could not bear the looks of the paper, as it would bring the thing up to my mind so vividly.

J. N. GILCHRIST.

El Montecito, Santa Barbara Co., Cal., Feb. 24, '89.

Now, old friend, I am about as mad as a bee-man ever gets, I guess. You have been to California, and did not come to see me. Well, did I ever! I sat up two nights, and slept three days with my boots on, expecting you to come, but you did not. But I am glad you had a good time, and returned safe home to your family and business.

Dehesa, San Diego Co., Cal. A. W. OSBURN.

Dear friends, if it would do any good I would sit down and have a good cry over my blunder in not meeting either of you. You see, I had no comprehension of what an awful big country California is. Besides, when I started away I was a good deal disturbed and perhaps somewhat excited. I

took along quite a number of letters, and fully intended to take both of yours. After I started I did remember your kind invitation, and my promise to call on you; but I knew so little of the names of the places that I could not remember very much about it. When I stated the matter to friend Wilkin he said you would doubtless all be at the bee-keepers' picnic he had planned, and that he sent invitations through the bee-men in the vicinity. Well, you were not at the picnic, and I had made arrangements so that my allotted time was up and more too; and before I knew it the time had gone by. Mr. J. S. Harbison did tell me the night before I left San Diego, that I could not very well go without seeing Mr. Osburn; but arrangements were then made so that it was next to impossible; and friend Wilkin did tell me that I surely ought to visit Santa Barbara before I went home. Please forgive your old friend for his awkwardness this time, especially when he tells you that he is now planning another and longer visit, and this time Mrs. Root is going. She is pretty sure she can not follow over all the mountains, but possibly we can leave her to visit with some of the women-folks while we do the climbing. Won't this do, friends G. and O.? Please don't feel mad any more.

CELLAR WINTERING.

LOSING BEES IN LOCATING ON NEW STANDS.

THERE is one thing that has always been a wonder to me in my experience in keeping bees; that is, how they are carried around and piled up in cellars like so many potato-barrels; carried out again some warm day for a fly, then packed back again in the evening and ricked up, and not one word about losing bees in all the years I have been reading bee-papers. My experience since I have been in the business is, that if I pick a hive up and carry it to a new location—no difference if it is from 4 ft. to 300, quantities of bees will go back and cluster around in little bunches, apparently lost entirely. Night coming on, I have often, out of pure sorrow for the little fellows, put back the hive in its place, to see them apparently made happy. Now, is that unnecessary sympathy in me? This may be very unimportant, as there seems to be so little said on this point; but I tell you, it is something to me. I have invariably, in moving my hives, had to move them little at a time, and told them, as it were, till I got them where I wanted them. Is that unnecessary? I used to think instinct taught them to follow their queen; but I've learned better.

Now, the case in point is just this: I had two hives set off by themselves (for convenience and room), say about 3 rods. I moved them back to the main apiary in November, to pack for winter. They had not had a fly for about five weeks, which proved to be rather chilly in the evening. I was not at home; but when I came, my wife asked me what the matter was with my bees—they had been swarming around that new place till dark, and great piles of them were clustering on the fence and shed. The night was cold and windy, with some rain. I looked after them as soon as I could see, to find what hadn't blown away of them; but

bunches and piles were huddled together dead, on posts, fence, roof, and everywhere. Now, am I to expect such losses, and let those that hadn't sense enough to go home out of the rain take the consequences of their own folly, and think nothing about it? or am I to blame myself for part of it?

If this is not important enough to notice in GLEANINGS, a word from you will suffice; but I want light on the above subject.

By the way, friend Root, I am an old Californian, having crossed the Great American Plains in 1852. I should really like to have a good talk with you about experiences; but I am rather surprised at a man of your cloth, at this late day, lying out in barns and sheds at night with strangers, even sleeping with them—deaf ones at that. I have been put to the necessity of slipping off by myself to the mountains, and building me a fire to keep off grizzlies, to put in a night when I couldn't do better; but I wouldn't have trusted any strange man, for fear he would have killed me for my boots. At some future time I should like to compare notes with you, if you like. Let me hear from you.

S. DANIELS.

Pine Grove, O., Feb. 7, 1889.

Friend D., if you will turn to page 81 of our issue for Feb. 1 you will see that our experience is just about like yours. I do not believe in moving bees, any more than you do, and that is one reason why I made the chaff hive to be a permanent home for each colony. When I want to move a colony, one that is in a chaff hive, I take as many combs and bees as I want, and start a nucleus in that chaff hive with the bees that returned to their homes—that is, where I want to move bees short distances.—You must have forgotten that I said the man I stayed with in the barn got out his old well-thumbed family Bible, and read a chapter before we went to bed. You see, that made us not only well acquainted, but brothers, and so I was not "away off among strangers" at all.

THE NAMELESS BEE-DISEASE.

A MALADY WHICH IS WORKING HAVOC IN A CALIFORNIA APIARY.

FRIEND ROOT:—I am somewhat in the frame of mind the man in the A B C was whose hopes were blasted, and thinks of emigrating. Some of our bee-men here wish me to state the case, as they are somewhat anxious.

Last September I began to notice that my bees were dying, a whole swarm going at once, seemingly. It was toward the last of my run of honey, and pretty hot weather. In the course of a month, 10 or 12 swarms had gone, some of which were full of honey at the last extracting. In December some 50 more died, and at this writing another hundred is added to the list of dead. The brood-combs, as a general thing, are left clean of brood, with the exception of some dead at the advanced stage of growth, where the bees had begun to gnaw out, or have the head out. The mature bees seem to have what you term dysentery, voiding the yellow excrement. The abdomen is distended, and sometimes filled with white or almost transparent fluid. The bees fall in a pile at the bottom of the hive; in fact, your description fills the bill, except as to the con-

dition of the weather. The past month, when the decline was so rapid, the weather was cold and foggy much of the time. Some swarms, which have pulled through to the present, with a handful of bees, are now raising some healthy brood, only a little, of course. As I remarked at the time the bees began to drop off, the crop of honey ceased to come in, except in a few colonies which continued to work later, and up to the time that other apiaries suspended. I note what you say about aphides, and would remark that honey-dew is secreted at the season of which I write. The swarms which pulled through so far are those which worked the longest, and evidently obtained their stores from other sources. Now that the weather is warm, these are robbing from deserted hives, and putting it in the brood-nest; and that, added to the fact that a few combs placed in another apiary to feed upon do not seem to have any bad effect, is still more of a puzzler.

So far as I am able to learn, the trouble is local. Others are not losing any more than the usual percent. Whether this is the opening of some pest on the honey crop, or whether it is a special or local cause, remains to be seen. I have feared that it might be in connection with my water supply. Ditch water failing, I resorted to tubs made from barrels in which I tried to make vinegar; but owing to inexperience I made it too strong of honey, consequently obtained only a worthless alcoholic slop. These were, of course, washed out and frequently filled, and were in use about two months or more. It was after the removal of running water and dew that the greatest fatality commenced. You will notice that it did not affect all simultaneously, but skipped here and there. My hives are set directly upon the ground, as do many in this community. I shall make an effort to build up again, and should like to use these combs. Do you think it safe?

Bee-men here feel that you made a mistake in passing by Kern Co. Although we are not so noted as our southern neighbors, nor as good and virtuous, yet we have taken the first premium for three successive years at the State Fair, and have several thousand stands of bees. If you had called you would have seen things equal to motor roads and Sweet Water Dam, though of a little different nature, and probably "sold the boys something to-day." Our own personal trade will, under the circumstances, be small; but our neighbors exported something like 150,000 lbs. of comb honey last season. One of them told me he had ordered \$1000 worth of supplies already.

I should be glad of your opinion on the problem I present, as my experience is limited, and this misfortune comes at a time when it falls exceedingly heavy.

W. A. WEBSTER.

Bakersfield, Cal., Feb. 4, 1889.

Friend W., taking all things into consideration I am inclined to think your bees were killed by drinking the water in those tubs. You may remember that my carp were killed by putting them over night in a barrel that had been used for pickles. The barrel was washed and rinsed, but there was vinegar enough in the wood to contaminate the water. When I first commenced reading I decided that your bees had got hold of some poison—probably the effects of Paris green or London purple, used for killing insects in your vicinity. I would put

the water for bees in shallow stone crocks. Throw in clean pebbles or gravel to keep them from drowning. Perhaps you will soon have irrigation in your neighborhood, and that will fix the whole matter.—Yes, I made a good many mistakes in not visiting different locations and calling on all those good friends of mine. See what is said about it in another column.

HYBRID HELLEBORE, OR CHRISTMAS ROSE.

SOMETHING TO GLADDEN THE BEES AND TO GLADDEN YOUR DOORYARD.

WE extract from *L'Apiculteur*, of Paris, the following article, which we believe will be of interest to our readers, for whose benefit it is translated from the French by our proof-reader, Mr. W. P. Root.

Here is a modest plant, the blossoms of which are the first to make glad the bees when they make their first excursion from the hive during sunshiny spells. They get pollen from it in abundance. For this reason the Christmas rose should have a place in every bee-keeper's garden. It is very rustic in other respects, and is quite indifferent as to the nature of the soil. It is propagated either from the



VILMORIN'S CHRISTMAS ROSE.

root or from the seed. Whole basketfuls of hellebore may be found near clumps of trees. The regular leaf of this plant, of a dark green, issuing from the peduncle, constitutes a summer ornament. At the country residence of Riquebourg, near Resson, Oise, France, the cultivation of Christmas roses in hot-houses requires a space of from 100 to 150 square meters. Every week during winter, the flowers are cut off and sent to Paris for the decoration of rooms. Hellebore, or Christmas rose, begins to blossom near Christmas, from which fact it derives its name, and continues through January and February, and even into March, depending on the rigor of the winter.

A small packet of seed, weighing 10 grammes, is sent free by the house of Vilmorin-Andrieux, 4 Quai de la Mégisserie, Paris, France, on receipt of 11 cts. to pay for packing. As the above firm solicits orders from America, I presume they are prepared to receive our postage-stamps; also to read communications in our language.

BEE-KEEPING IN SOUTH AFRICA.

CHAPTER II. OF A MISSIONARY'S EXPERIENCE IN STARTING IN BEE-KEEPING.

DEAR GLEANINGS:—In my first letter, published Dec. 15, I promised to send Chapter II. of my experience when I found time to write it; and that seems to be the present time. I told you that I had three boxes of bees (I do not feel justified in calling them hives) as the result of my capture of about three times that number of colonies of wild bees. Then I sent to America for "a good book on bee-keeping"—Langstroth's. I knew that bees were in the habit of sending off swarms; but these of mine, if they had ever swarmed, did it when no one was about. It was not possible for me to keep watch of them, and how was I then to increase the number of colonies? I read what was said about "artificial swarming." Ah! there is the solution of the difficulty. I determined that I would divide my three colonies and make them into six, and another year the six would become twelve, and a third year—but I will go no further. I believe I was to be contented with ten good colonies. Mr. Langstroth's directions for artificial swarming are very specific, but there were difficulties for which he had not provided. For one thing, our seasons are "the other end to." He talks about swarms in May; but that is when our winter begins. That is all the winter we have, if it is proper to speak of a winter where there is not even a frost. Then, again, he speaks of certain plants being in bloom, as the white clover, the basswood, etc., none of which we have. Of course, we have honey-plants, and, of course, bees swarm, and swarm when there is honey to be gathered; but what are the honey-plants of Natal, when are they in blossom, and when do bees swarm in a country so warm the year round that there is no frost? I did not think so much of these various conditions then as I did after I had tried artificial swarming. The directions were so plain that I felt sure I could succeed. Mr. Langstroth gives fair warning of the danger of failure, and of the need of going slow. But as people so often, when they hear a good sermon, give it to their neighbors, so I considered that these warnings were for those who did not follow the directions carefully.

I had about a dozen hives with movable frames made in the Industrial department of the school. This department had only just started, and the boys in the shop did not yet know much about using tools. I must also confess that it was my own fault that I did not get better hives. I did not think I could afford expensive hives, and so attempted to have some paraffin-cases made over into hives. Kerosene oil is called "paraffin," in Natal, and comes to us in tins protected by wooden cases. These cases, when laid on the side, are about the size and shape of an L. hive; but although they were cheap, it was a penny-wise and pound-foolish plan, as cheap investments so often are. The trouble was not that the hives retained the smell of the kerosene, but there were cracks and knots in them, and in time the cracks became wider and the knots came out. To make matters worse, I tried to make them into observing-hives, with a glass and a door at the back. I can see now how foolish it was; but that did not help any then. As some one has said, "If only our foresight were as good as our hindsight, how wise we should be!"

My hives were made and painted in our winter, so when spring came I was ready to multiply my three colonies into six. Formerly I had carried on my operations with bees at night; but now acting on a suggestion of Langstroth's, that whoever attempted to do any thing with bees at night was sure to repent of it, I determined to try the day for transferring and dividing my bees. I had made a bee-hat by framing a small glass and sewing it into a strip of mosquito-netting. Like many others in this country, we had the idea that mosquitoes abounded everywhere in Africa, and took out with us a large roll of mosquito-netting, which we never had occasion to use. My bee-hat was not a success. The moisture from the breath, condensing on the glass, made it little better than a piece of tin to look through, and the frame bumped against my nose and face rather disagreeably. I had bought a pair of weeding-gloves, which answered very well for bee-gloves. I see friend Root does not approve of handling bees with gloves; and I will confess that, when I saw the gloves covered with stings, and thought that every sting meant a dead bee, I felt very sorry for the bees; but my sorrow was tempered with thankfulness that the stings were in the gloves and not in my hands.

The day selected for operations was bright and hot, and the time about noon. Armed *cap-a-pie* we sallied forth; that is, I was armed; but the native boy who was to assist me was not. My unpainted boxes had become somewhat rotten by this time, and the bees had found numerous places of exit besides the one I had made for them. It was not an easy task to carry out the direction of the book—to close the entrance of the hive and remove it to another place while transferring. I might close one entrance, and the bees would rush out from half a dozen others. However, I thought I could manage it. My plan was to throw a sheet over the hive, lift it quickly from the ground while the boy grasped the ends of the sheet underneath the hive and twisted them together, and thus confined the bees. The plan worked beautifully until a stray bee made straight for that boy's eye, causing him to drop the sheet and run. Strange as it may seem, those bees were in a decidedly bad temper as they rushed forth to see what it all meant. I thought my armor was bee-proof, but soon found out my mistake, and ran to find out where my boy had gone to. The spectators all laughed, and this suggests a puzzle which might be offered by some enterprising paper as a prize puzzle. There is no copyright on it. Puzzle: What is it that is so funny in seeing other people stung? I do not ask this reproachfully. I have myself been in both places, and I laughed when I was a spectator, and didn't laugh when I was in the other place. At that particular time I was in the other place, and did not feel like laughing. I began to think the day was no better than the night for handling bees, and that Langstroth might have said, "Night or day, you will be sure to repent of it."

It will probably be thought that, under the circumstances, we postponed further operations to another day. Very likely that would have been the part of wisdom; but wisdom was an article we had not yet acquired so far as bees were concerned. I afterward learned that the principal object of bee-keeping was to acquire bee-wisdom. No; I did not wait till another day, but, readjusting my armor, I went back and tried again, and finally drum-

med the bees into a state of acquiescence to the inevitable. The comb was transferred to frames, and the bees were divided into two colonies. Previous to this we had moved out of the "bee-haunted" house into another not far away. I had there prepared a nice shady place for my ten colonies of bees which I was to obtain by artificial swarming. I had not then seen friend Root's plan of placing the hives on bricks, and filling up to the edge of the hive with sand. How the white ants would like that! They would come up through the sand and eat their way through bottom, sides, and top of the hives, leaving only a shell where there was a solid board. I had prepared a place by thinning out a clump of bush, and driving down posts of a native wood, a species of olive, so hard that even the white ants do not eat it. On these posts I nailed boards, and here placed the hives. It was a beautiful place, and it would seem as though any right-minded bees would settle down at once to good honest work, on finding themselves in such a home.

I fear that my bees were not right-minded; for the results did not justify the confidence that I had placed in them. I transferred and divided my other two colonies, or, rather, one of them, I should say; for as I was about to proceed against the other I found that they had just sent out a swarm which was waiting for me on a tree close by. I left the parent colony in their old box, and hived the swarm, removing both to my new apiary. So I now had six colonies, and I became ambitious to get ten. So I told the boys that, if they would find some colonies of wild bees, I would give them a sixpence for each one pointed out. I had some qualms of conscience at the time for offering so little, and some regrets afterward that I had given so much. I completed my ten colonies with rejoicings. Another year I would feast upon honey, I thought. But it is well not to count chickens before they are hatched, and not to eat honey before it is gathered. In another letter I will tell you what became of my ten colonies of bees.

H. D. GOODENOUGH.

Clifton Springs, N. Y., Jan. 23, 1889.

Friend G., you kept me uneasy during all your description, because I did not find anywhere that you spoke of using smoke. Why in the world did you attempt to do any thing with bees until you first had given them a good smoking, according to the books? Even if one could fix himself up with gloves and veil, and every thing else that has been used, to make a regular bee-proof armor, I would by no means think of handling bees without smoking them. They will be pretty sure to find a break in the armor, and get through. Even if they should not, you will get them so furious as to attack passers-by and domestic animals; and I do not think that anybody has any right to arouse a colony of bees to such a fury as trying to handle them without smoke does; and this is one great reason why I object to gloves or veil either; better lose the time required to bring the bees into perfect subjection than to have them on the wing stinging right and left. When we throw away our veil and gloves, and carefully learn to judge by their behavior as to what bees will do, we soon learn to handle them with comparative impunity, even

when an inexperienced person would rouse them to fierceness; and we also learn the time of year and the time of day the bees can be handled safely and when they can not.

BEE-KEEPING IN UTAH.

FURTHER FACTS IN REGARD TO THE TERRITORY AS A HONEY-COUNTRY.

BEE-KEEPING in Utah, as far as I have been able to judge, differs but little from bee-keeping elsewhere. The hives and fixtures are about the same, while the pasturage seems to be more sure than in most places. We almost always get some surplus, and it is generally through extracting too close that we have to feed. Of course, the crop varies with the season. If we have a dry season, and sweet clover is not so abundant, we have a light crop.

The hives used are of various patterns and dimensions. The Kidder predominates among the farmers and those not considered to be practical bee-keepers; while among good bee-keepers the Simplicity, Heddon, and what we call here the "Short Langstroth," or a frame that fits crosswise of a ten-frame Simplicity, is used.

The bees are a cross between the black and Italian, with a predominance of about two-thirds in favor of the latter, although we have had importations of other races at different times. Our best honey-gatherers are generally those that are considered a trifle cross.

Comb foundation plays a very prominent part here among practical bee-keepers.

The sources of honey are various, the most prominent of which, as I have before stated, being sweet clover, while the bees gather considerable from fruit-blossoms, alfalfa, wild flowers, etc. The surplus-honey flow does not generally commence until sweet-clover bloom, which begins about the first of July; and in most seasons it continues until the first of September, although the bees generally gather enough to live upon from the middle of April until late in October.

In a dry season we do not have to wait for the honey to get sealed, as it is pretty thick when gathered, therefore we can extract, generally, when the frames are full, which, in dry seasons, is about every ten days. In moist seasons which, by the way, are very rare, we have to let the honey get about a third capped. The honey taken in the above way candies in a very few weeks, and becomes very solid. It is then (with us) in a very good condition for shipping.

Comb honey is handled much in the same way as in other places. The T super seems to be, all things considered, the best adapted to our system of management.

In handling bees during the season, the minor points in management are as many (if not more) as the bee-keepers, while the main points are about as follows:

Along in March or April, according to the season, the hives get a thorough cleaning; all dead bees, dirt, broken combs, etc., are removed; the hives are straightened up, and the litter, etc., is raked up and carried away from around the hives; and if any bees are without stores, full frames from those that have plenty are given them.

In May, queen-rearing and dividing claim our attention. In June, the stocks are all built up, and every thing is put in readiness for the honey-flow; the supers are put on the last week in June or the first of July. In about two weeks extracting commences, and keeps up until the last of August, when the surplus-honey flow generally ceases. The supers are left on until about the first of October, to catch any surplus that might be stored, then they are taken off and the bees are packed for winter.

Bees are generally wintered in single-walled hives on summer stands, although chaff hives are used. Some give their bees considerable protection, while others consider it unnecessary.

The honey-market here is not the best in the world, as there are by far too many small producers; but I am happy to say that their ranks are weakening. Fruit-growers here look on bees as their friends, while the bee is considered the emblem of Utah. We hear very little about adulteration of honey, as it will not pay.

We have considerable trouble with foul brood, which is generally found in old tumble-down Kilder hives, but very seldom found in a well-kept apiary. In fact, I have never seen the disease, except in neglected apiaries. The foremost bee-keepers of Utah are young men, and you may hear of something from us in the way of bee-keeping, in the near future; but be that as it may, bee-keeping in Utah has come to stay, and I predict that, in a very few years, it will be quite a source of revenue to the Territory.

J. C. SWANER.

Salt Lake City, Utah, Jan. 24, 1889.

CARE OF COMB HONEY IN WINTER.

HOW MUCH DOES IT DETERIORATE IF PROPERLY CARED FOR?

A GREAT many honey-producers seem to act on the belief that honey is a perishable product, which must be placed on the market as soon as possible after it is secured. Just as soon as the honey is taken from the hives or at least as soon as cold weather is at hand, they make haste to ship it to commission merchants in some of the large cities, or to crowd it upon grocerymen of their own neighborhood, far beyond their immediate needs. Various evils result from this. In the first place, the markets are often so overcrowded that prices are forced down below where they really belong and would remain if more wisdom had been shown in disposing of the product. As it is, these impatient and over-hasty sellers often fix the price for the remainder of the season, causing loss not only to themselves but to others. The offenders in this direction are usually the small producers; but many large producers are not exempt from the same charge.

An objection that is perhaps more serious to this careless way of disposing of a season's labor is the fact that honey usually deteriorates very rapidly after it leaves the producer's hands. Comb honey may be kept from one season until the next, unimpaired in quality, but it requires some care and a proper place for keeping it. The producer ought to be able to supply these, while it is perhaps too much to expect of the dealer. The average commission store is a very poor place for storing comb honey, and many grocery stores are not much bet-

ter. It is almost needless to say to any honey-producer, that honey should always be kept in as dry a place as possible, because in a damp place it soon absorbs moisture, and becomes thin and watery. The surface of comb honey "sweats," or becomes covered with drops of moisture, and the nice white comb becomes dark and unattractive, owing to the increase in bulk of the honey in the cells. Sometimes the caps of the cells even burst from this cause, and frequently the honey undergoes a partial fermentation, and loses much of its sweetness. The honey in unsealed cells and broken places becomes so thin that it runs almost as readily as water when the comb is turned on its side, daubing every thing beneath.

All these results I have seen for myself. Once while making a tour of inspection among the commission houses of one of our large cities I came across a large lot of honey, the producer of which was known to me, and I knew that he had taken unusual pains that his honey might reach the commission merchant in the best condition possible. There it was, stored in a cellar which, with its damp, cold atmosphere, was of all places the most unsuited for the proper keeping of honey. At another place I found a large lot of honey in a room intended for the cold storage of butter and eggs. It was (or, rather, had been) an extra fine lot of honey, and the merchant was taking extra pains with it, as he supposed; but somehow, he said, it was not keeping well. No wonder. It was worth at least three cents a pound less than when it left the producer's hands. Some may see in this a reason why their honey sold for so much less than they expected.

This state of affair may perhaps be somewhat improved by a little missionary work among commission men; but the producer must expect to bear the brunt of it himself. In the first place, honey should be prepared for market by a thorough ripening. This is best done by storing the honey in a room which may be heated to about 100°, and kept at that temperature as long as desired. An oil-stove will be found an excellent arrangement for heating the honey-closet, or, if the closet is small and the weather not very severe, an ordinary large-sized lamp will answer. Neither of these will require attention more than once or twice a day.

This ripening process should begin as soon as all the honey is removed from the hives and stored away, and continue for several weeks. By this means the honey is thoroughly ripened, and acquires that rich pleasant taste so often remarked as belonging to honey which has been left in the hive for a long time. More than this, the honey in all unsealed and broken cells is evaporated down until it is so thick that it can not run from the cells. Any one who has ever handled leaky and dripping comb honey will appreciate the advantage of this. "Your honey is always so clean and dry—no stickiness about it," was the remark made to me not long ago by a dealer of considerable experience.

After the honey is once well-ripened it is scarcely necessary to keep the room at this high temperature, although it would no doubt be advantageous. Unless it is kept reasonably warm and dry all the while, it should be warmed up whenever the weather is very damp or very cold. If this is done, the honey will not attract moisture, nor crack, as often happens in very cold weather. If proper care is taken in regard to temperature and dryness, comb

honey may be kept in good condition for an indefinite time.

I hope I shall not be thought egotistical if I remind some who have written of this plan as if it were their own, that I was the first to recommend artificial heat for ripening comb honey. "Honor to whom honor is due." Surely, brethren, it does not cost much to give proper credit for an idea.

After you have your honey in good condition for the market, do not ship it off to commission men in large lots unless you are sure it will receive proper care until it is sold. Keep all who handle your honey, whether commission men or retail dealers, constantly supplied, but let their stock on hand be gauged as closely as possible by the running requirements of their trade. Any amount beyond this is safer in your own hands. J. A. GREEN.

Dayton, Ill., Jan. 30, 1889.

Friend G., I can attest to the truthfulness of every point you make. I have seen comb honey after it had been kept a year or two, and we have had some experience ourselves. I am pretty sure it will pay the owner to examine and fix up any honey that is held over a year or two on commission.

THE SILK-MOTHS OF AMERICA, ETC.

PROF. COOK DESCRIBES THEM.

MISS EVA M. WATROUS, Lake, Mich., sends in a *strong tin box* the cocoon of one of our largest silk-moths—*Lelea polyphemus*, or cocoon of the oak-tree silk-moth. She says, "We found it on a lilac, under an oak-tree. Mother thinks it comes from a long 'worm' which feeds on the oak."

Bless these mothers! They are usually correct. The lilac-bush grew close beside an oak-tree. The teacher, she says, said it was a tomato-worm. Bless the teachers! but, as this shows, they are not always correct. Miss Eva closes with, "Please oblige and instruct us, and perhaps many who are interested in nature's wonders, and who are readers of GLEANINGS."

This cocoon is more compact than is that of the silk-worm that feeds on apple, etc. It is dark gray, three inches long, and nearly half as wide. The dried-up larva is inside; but it would never have produced a moth, as parasites have devoured its substance. These little parasites, whose life-history I hope soon to give in GLEANINGS, are ever on the alert, and bring to naught many a large insect. Had our friend placed this cocoon in a close box, she would have reared some of these parasitic flies.

The oak silk-moth is one of our largest American silk-moths. They are buff in color. A heavy black stripe, bordered with a narrow white line, cuts off a strip of buff on the margins of the wings, which trims up the moth in fine style. A transparent eye-spot marks the front wings. This is bordered by a narrow ring of white and black. A larger similar spot on the hind wings has a large blue patch inside of it. The beautiful green larva has deep red tubercles, which bear hairs.

These insects form an excellent silk, perhaps equal to the Chinese silk-worm. Indeed, a Boston gentleman had a plantation devoted to their culture a few years ago. Disease, however, got among them and cut short a very interesting ex-

periment. All of these large silk-worms, of which we have several species, spin their cocoons in the trees, attaching them to twigs. One of them, the alanthus silk-worm, fastens to the large compound leaf. But this leaf falls, so some provision is necessary to keep the cocoon up in the tree where all is high and dry; hence the larva, before spinning its cocoon, goes to the base of the leaves and fastens them securely by silk threads which are firmly attached to twig and branch. Where this is not necessary, it is not done. Is such discrimination mere instinct? To call all such actions mere instinct is making instinct a greater thing than is reason. Instinct is only inherited habit.

A. J. COOK.

Agricultural College, Mich., Nov. 6, 1888.

DOOLITTLE'S CAVE.

WILL SUCH A CAVE ANSWER ON CLAY SOIL, WITHOUT SPECIAL PROTECTION?

FRIEND DOOLITTLE has persisted that bees can be wintered without any sub-ventilation, and without any attention whatever to ventilation. Now, if it can be done as easily and at as little expense as he says, there would be a good deal of saving of time and expense. His last article (p. 41), and the remarks under it, with the foot-notes on p. 46, and especially the fact of his success, make me have a good deal of hope that he may be all right. To me it would be a very delightful thought to think that I could put my bees away in the fall, without care, and with no anxious thought about them till spring.

To the last question in the foot-notes, "Would it do to shut up a cellar tight, in a damp clay soil?" I should very much like an answer, for that's just the soil I have. Most rose-cultivators approve of covering roses, before freezing, with soil. One year, just before freezing up, I covered my hardy roses with soil, and in the spring not more than five out of a hundred were alive. The soil was clay, and very wet at the time, and I think the roses were smothered. I suspect bees would smother if shut in the same soil. But if it be the covering overhead that allows the ventilation, as you suggest, friend Root, then the case is not so bad; for material could be hauled from some distance. Possibly some other material than soil might answer. I do not know that it is any thing strange that Doolittle's cave keeps "as low as from 43° to 46°." You say Mammoth Cave holds at 56°, summer and winter. I suppose Doolittle could find a depth at which he could hold, say, 54° summer and winter, the temperature outside ranging between the extremes of 30° below and perhaps 95° above. At a trifle less depth it would slowly vary from 53° in winter to something like 55° in summer, and at a still less depth the variation would be still more, until we reached a point where, instead of 54, summer and winter, we might have perhaps 9° lower than 54 in winter, and 9° higher in summer, only at this point we should have slight variations with the weather, making it in winter from 43 to 46 instead of staying uniformly at 45.

I don't know but I'll have to give under to Doolittle in this whole matter of wintering; but to save his chucking over it, the printer needn't print this in the copy of GLEANINGS that is sent to Doolittle.

DILWORTH'S "EXCLUSIVE RIGHT OF TERRITORY."

More and more, as men think of making a regular business of raising honey this matter of exclusive territory "will not down," but will come to the front. For one, I shall gladly welcome any fair and honest solution of the problem. Friend Dilworth's plan is "to pay each farmer or lot-holder within the flight of his bees a certain sum yearly, not to keep any bees on his property." It is something after the plan recommended by Mr. S. T. Pettit, of Canada. In the foot-note, friend Root says, "Go to your neighbors all round about you, if you are located in the country, and get them to sign a paper, agreeing not to keep bees under a certain number of years." The plan has a look of fairness about it. Now, will friends Dilworth and Root put it in practice? If I am not mistaken, friend Root has said he would like to have exclusive territory; and if I am not still more mistaken, there isn't a man in the business, having as many as a hundred colonies, who would like another hundred colonies set down within half a mile of him. So, friend Root, you are just the one to try it. Still, I'm not so sure that I hate you bad enough to want you to try it. If you were to start out to-day to get every one within a mile of you to sign a paper not to raise oranges in the open air, I think it would cost some money; for people who never dreamed of raising oranges would feel sure there was money in it, and I'm not sure but it might be the means of getting some started in the business. So in the bee-matter, I think you would find a good many who would refuse to sign altogether, and others to ask an unreasonable sum, while the very fact of your attempting to buy some men off would start them to thinking whether they ought not to keep bees. Then suppose you have bought up or had given you all the territory within two miles of you, except just one acre that belongs to old Grasper, within a quarter of a mile of you, the whole affair is utterly worthless unless you can get that acre, and Grasper has you at his mercy. Then there may be sheriffs' sales, and things of that sort among so large a number, and then your previous arrangements are upset.

I have just looked at the map, and counted the different parties owning land on one-fourth of the ground within two miles of me—and surely apiaries should be at least two miles apart, if of full size—and I find there are 30. This includes no village or suburb; and if I take in the whole ground, village and all, it runs up into the hundreds. Excuse me from stirring up those hundreds. I have no trouble now, and never had; but if I started out with a paper I might make myself trouble. You can see, friend Root, that, in the great majority of cases, you would have from 100 to 500 parties of all sorts to deal with. But friend Dilworth is just that much ahead of the majority, that he sees *some* plan is needed.

C. C. MILLER.

Marengo, Ill.

I grant, doctor, that, in my locality, it would be a pretty big job to get exclusive territory; but where one has a farm, and all around him are large farmers, it seems to me there ought not to be any difficulty in purchasing it. Large farms do not change owners very often. If that does not answer, go where land is cheap, and buy all within a mile in every direction. Who will tell us how many acres it would take? By the

way, almost everybody in our neighborhood has given up bee-keeping, and I believe that that would be the result to a certain extent in the course of a number of years, especially if the acknowledged bee-keeper of the locality does not have any very big bonanza, and *they* do not come very often.

BEE CULTURE IN PREMIUM LIST.

WHY THIS INDUSTRY HAS NOT RECEIVED THE POSITION IT DESERVES.

I WISH to call the attention of our bee-keeping friends at large to a matter in which I think we are all interested; that is, the manner in which our vocation is neglected by agricultural societies. I find, in looking over a great many premium lists in this and adjoining States, that bee culture is recognized in only comparatively few of them. Now, why is it so, and who is at fault? Is it the officers of said societies, or bee-keepers themselves? I am inclined to think that, in a majority of such cases, it is the latter; for in my experience with agricultural societies I have never met a board of officers who were not only willing but anxious to add an apiarian department to their premium list.

As I have intimated that bee-keepers are at fault, I must explain wherein. As a rule, officers of agricultural societies are not conversant with or skilled in apiculture, consequently are at a loss to know the requisites in an apiarian department, which could be furnished them by almost any bee-keeper who would volunteer to do so. But this is too often neglected or deferred until too late; and the consequence is, apiculture is left out. Now, friends, let me insist that every bee-keeper consider himself a committee of one to look after this important matter of seeing that our industry is represented in your respective agricultural premium lists. In case you should meet any opposition in the board of officers, press upon them the fact that bee-keeping is an essential branch of agriculture, in that the honey-bee is indispensable to the fertilization necessary in the vegetable kingdom; that honey is a production of the farm, and can be had at the door of every farmer who will acquire the proper knowledge of handling a colony of bees. Besides, it is a wholesome and desirable article of food, and is getting to be one of the staple articles of our markets, therefore its production should be encouraged by every agricultural society in the land.

Now, friend Root, as some of our bee-keeping friends may be a little backward, and feel incompetent to furnish the requisite list, and as it has been suggested in GLEANINGS that a list be published as a guide for those interested, allow me, with your assistance, to submit the following form, or criterion, for county fairs:

	1st Pr.	2d Pr.
Best colony Italian bees.....	\$2.00	\$1.00
" Native, or black bees.....	2.00	1.00
" Italian queen-bee.....	1.00	50
" Display of comb honey, quality and manner of putting up for market to be considered.....	3.00	1.50
" display of extracted or strained honey, for market.....	2.00	1.00
" 5 lbs. fancy comb honey.....	1.00	50
" 5 lbs. fancy extracted honey.....	1.00	50
" Specimen comb foundation.....	1.00	50
" 5 lbs. beeswax.....	1.00	50
" Bee-hive for all purposes.....	1.00	50
" Display of apiarian implem'ts.....	3.00	1.50

Benton, Ill., Feb. 12, 1889.

WM. HUTCHISON.

Your ideas are tiptop, friend H. My experience has been exactly like your own. When the officers of our county fairs blunder, and make themselves a laughing-stock for all bee-keepers, it is the fault of the bee-keepers, because they did not come and help and properly post them. Perhaps the officers of some county fairs think they can not afford the amount of money (\$27.00) in your table; but in such an event, the bee-keepers should turn in and help. After you have once showed the officers what you can do, and put up your display in good shape, I am sure they would not be at all backward in giving you handsome encouragement; and this state of affairs is very much better than fault-finding. If, after having done all you can, they should get hold of a poor man for judge, and accord the premiums to a box-hive bee-keeper, don't find a bit of fault, but urge the importance next time of having a practical bee-man for at least one of the judges.

THE FOOD QUESTION IN WINTERING BEES.

FRIEND CORNEIL TAKES FRIEND HEDDON TO TASK.

REPLYING to question No. 97, in GLEANINGS, Mr. James Heddon says it does not make much difference about ventilation, because the whole matter of safe wintering hinges on the food. Since, of the thirteen bee-keepers who send replies, Mr. Heddon is the only one who ignores ventilation as a factor in wintering, it is proper to inquire what are his views regarding food, upon which, in his opinion, hinges all the chances of failure or success.

Of sugar syrup he says, "It has heat-producing elements to a greater degree than honey." He says, "Syrup contains no nitrogen, but it does contain more oxygen" than honey, and he says this oxygen is burned to keep up the temperature. Of pollen, he says, "Pollen is almost wholly nitrogen," and "the consumption of nitrogen is the cause of the trouble." On this account he objects to honey, because it often contains floating pollen.

In a recent article, Mr. Heddon says, "When the bees find themselves unable to keep up the proper temperature by the burning of oxygen derived from the honey and sugar syrup they consume, they add to it combustion from that taken in the air they breathe." Honey and sugar are built up of carbon, with twice as much hydrogen as oxygen. This is precisely the proportion in which these two elements are united in water. Neither the one nor the other plays any part whatever in heat production, when combined as they are in this case. That depends entirely upon the quantity of carbon present, and upon the requisite quantity of oxygen being taken in, by breathing, to oxidize it. The oxygen which takes part in heat production is not taken into the alimentary canal, and is therefore neither meat nor drink, but it passes from the air, taken in by breathing, into the blood by diffusion, and by diffusion also from the blood into the tissues; hence the necessity for a change of air in the hive, because "one pound of carbon requires for its combustion 158 cubic feet of air."—[Butler on Ventilation of Buildings.]

The quantity of carbon in one pound of sugar is

43 per cent of the whole. One pound of sugar, therefore, requires for its combustion about 68 cubic feet of air. Supposing the bees to consume half an ounce per day, or about a pound per month, and supposing the air space in a hive to be half a cubic foot, to furnish the oxygen absolutely required for the consumption of this small quantity the air in the hive must be changed in one way or another, at least once in every six hours. There is no escaping this conclusion. If this supply of air is cut off, the bees will die just as certainly as the machinery in the "Home of the Honey-bees" would stop if the dampers were closed and the furnace hermetically sealed.

I may mention, incidentally, that the oxidation of half an ounce of sugar in the bodies of the bees produces sufficient heat to raise the temperature of $23\frac{1}{4}$ lbs. of water one degree. In both the above cases, the sugar is assumed to be free of water. Assuming their food to contain 18 per cent of water, which is about the normal quantity in honey, the oxidation of half an ounce of food would raise the temperature of 13 lbs. of water one degree. Since the quantity of carbon in honey and sugar is the same, their heat-producing powers should be the same, and experimental tests prove this to be the case.

The union of oxygen and carbon, besides generating a great amount of heat, produces a large quantity of carbonic acid, which is given off with the breath. To dilute this gas as fast as it is produced, so as to render it harmless, the air in the hive must be changed every half-hour, assuming the consumption of stores and capacity of the hive to be the same as before.

The quantity of vapor produced by the consumption of a pound of sugar can be shown to amount to about 16 cubic feet. This is an additional reason for a steady change of the air in the hive.

These statements of fact are in accord with the teachings of physiologists and scientists whose reputation is second to none in the world; and I would ask Mr. Heddon to investigate what is known regarding these facts, and be prepared either to admit their correctness, or to successfully controvert them.

"From the researches of Dr. A. de Planta, as to the chemical composition of hazel pollen, we learn that the contents of pollen grains consists of protoplasm, starch, and oils. After thorough drying, the residue remaining consists of 31.63 per cent of nitrogenous matter, 64.36 per cent of non-nitrogenous substances, and 4.01 per cent of ash. The non-nitrogenous portion contained no glucose, but cane sugar was proved to be present to the extent of 14.70 per cent, and starch to the extent of 5.26 per cent."—[B. B. J., 1886, p. 286.]

In an analysis of pollen given by the late Arthur Todd, B. B. J., 1883, p. 14, we find:

Water.....	12.74 per cent.
Ash.....	2.72 per cent.
Albuminoids.....	21.75 per cent.
Sugar.....	26.20 per cent.
Nitrogenous organic sub's.....	36.59 per cent.

Albumen, which is shown to be present to the extent of 21.75 per cent, contains about 15 per cent of nitrogen, or 3.26 per cent of the whole. The whole amount of nitrogen present was less than 40 per cent in this case, and less than 32 per cent in the former one. These analyses hardly justify any one in saying "pollen is almost wholly nitrogen." In the latter case the carbon in the sugar present

amounts to 11.27 per cent of the whole, and the carbon in the albumen present amounts to 11.52 per cent of the whole, or in all more than half as much carbon as there is in an equal weight of sugar. The other elements, nitrogen, sulphur, and phosphorus, produce some heat also. These facts show that, for direct heat production, pollen is not an unimportant item in the larder of the hive. According to the investigation of Erlinmeyer and Dr. von Planta, the average total quantity of floating pollen in ten different samples of honey was only about one part in 600 parts of honey. Regarding this, Pastor Schoenfeld says, "It is quite clear that so exceedingly small a percentage of nitrogen is altogether insufficient to maintain a colony in a normal and healthy condition during the winter."

I shall not now discuss the necessity for pollen to repair the wear and tear of tissue in bees from the time of fall feeding till the time for gathering pollen in the following spring, a period of, say, seven months, during at least a portion of which time it is impossible to keep them in a state of quiescence; but I shall direct attention to two facts to which other writers on food for wintering have not alluded, as far as I recollect; namely, that, under any circumstances bees can not continue to digest sugar syrup for any considerable length of time without the aid of nitrogen, and that the oil contained in pollen materially assists the digestion of both the nitrogenous and carbo-hydrate food stuffs. In order that the reader may judge as to the sufficiency of my grounds for making these statements, I quote as follows:

Dr. Letheby says, "It is very probable that the nitrogenous matters assist the assimilation of hydrocarbons. Fat serves important functions in the process of digestion, assimilation, and nutrition. The digestive power of fat is considerable."—[Lectures on Food, pages 71, 74.]

Dr. Parkes says, "If the nitrogen be cut off from the body, the various functions languish. This does not at once occur, for every body contains a store of nitrogen, but it is at length inevitable."—[Practical Hygiene, vol. I., p. 204.]

Dr. Wilson says, "The saccharine constituents are largely concerned in carrying on the digestion of nitrogenous substances."—[Handbook of Sanitary Science.]

Dr. Pavey says, "It may be inferred that nitrogenous matter is required, not only for the formation of tissues, but likewise for contributing, by the promotion of the requisite change, to the utilization of non-nitrogenous principles; and unless it exists in suitable amount in the food, these principles fail to pass to their proper destination. The presence of fat in the food seems in some way to promote the transformation of the carbo-hydrates. Fat exerts a favorable influence over the assimilation of nitrogenous matter."—[Treatise on Food and Dietetics, pages 278, 279.]

Prof. Foster says, "When an animal is fed simply on non-nitrogenous food, death soon takes place. The food rapidly ceases to be digested, and starvation ensues."—[Text-book of Physiology, page 570.]

These quotations are hardly compatible with the statement that "the consumption of nitrogen is the cause of all the trouble."

If practical proof of the truth of these statements is required when applied to the case of the bees, it is furnished in the experience of Mr. Heddon, as

given on page 270, GLEANINGS, 1885. His bees, from which pollen had been excluded as far as possible, died of starvation, notwithstanding the fact that they were found to be full of undigested sugar syrup. In the light of the information furnished by the physiologists quoted above, are we not justified in attributing their defective digestion to the absence of nitrogen and oil, which a supply of pollen would have furnished? Mr. Heddon found, then, for the first time in a long experience, that bees quite readily succumb to the effects of cold. When the digestion of sugar languished and then ceased, a failure in keeping up the normal temperature should excite no surprise. The experience of Mr. Demaree, given on page 788, vol. 1, C. B. J., is another case in point, showing that bees can not continue to digest syrup without pollen.

In view of all the facts, I think it will be admitted that Mr. Heddon is in error as regards the composition of honey, syrup, and pollen, their functions in the process of digestion and assimilation, their capacity for heat production, and the necessity for a constant change of air in the hives. I submit, therefore, that he is not in a position to be able to say with confidence, "The whole matter of safe wintering hinges on the food." All attempts to defend the exclusion of pollen from the food of bees in winter, on scientific grounds, have broken down, and all experiments made to justify its exclusion, by the success of practical results, have been either so inconclusive that they are quite worthless as proof, or they have proven the very contrary of what it was supposed they would establish. I think it is high time that Mr. Heddon should begin to see that the old-fashioned food, honey and pollen, with surroundings such as will keep the bees comfortable, are, after all, the most reliable conditions for safe wintering.

S. CORNELL.

Lindsay, Ont., Can., Feb. 11, 1889.

Friend C., you are doubtless right, or pretty nearly right; and I presume likely that friend Heddon as well as myself has got somewhat rusty on chemistry. You have given us theory and science (and I believe you are correct) enough to last us a good long while. Now, while I do not mean to be disrespectful to science or theory either, I want to say that I have wintered splendidly when every thing was removed as closely as I could remove it, except stores of sugar syrup. In fact, we took their combs all away, and gave them clean combs containing nothing but sugar syrup, and I never saw bees winter better than they did. We have done nearly the same thing, on a large scale, since the time I have mentioned, and there was no loss with as many as 200 colonies. In this latter case, however, they had their own combs; in the former experiment alluded to they did not commence brood-rearing, or at least did not succeed in rearing brood, until they got pollen; and in regard to ventilation, I feel sure either that bees do not need as much as you estimate, or that more air gets through ordinary hives and ordinary cellars than we are aware of. I have repeatedly seen bees winter beautifully in ordinary cellars that seemed to be remarkably close and tight, where no provision had been made for ventilation at all; and with bees buried in the ground, or put in caves, as Doolittle mentions, they not

only do well, but even better, than where provision is made to have a constant circulation of air. We thank you for your excellent article, because it gives us valuable scientific data for future reference; but if practice and theory should give different results, I would stick to practice. Friend Terry said that, when scientific men were against ensilage, and the cows were for it, he preferred the testimony of the cows. I believe the cows have come out ahead.

CALIFORNIA; CONSISTENCY OF CHRISTIANS, ETC.

A GOOD BOOK ON THE SUBJECT OF TOBACCO-USING.

MR. ROOT:—I have delayed this letter, that Huber and all the home friends might have time to exhaust their store of questions in regard to that wonderful country you have just visited. My husband traveled over a part of the same country one year ago, and was so well pleased with it, and had such good times with J. Root, that he tells me he left his heart there. I think the orange-tree, with its fruit in all stages of growth, and from which ripe fruit may be picked every month in the year, might remind us somewhat of the tree of life, spoken of in Revelation. And did you never think, while admiring them and all the other beautiful things, what wonderfully large tobacco-plants are raised in that rich soil, whose leaves are not for the healing of the nations? No doubt you did, and were saddened by it. I have not seen much about tobacco in GLEANINGS of late, and I often wonder if all the tobacco-users who come under the influence of your journal have reformed, and if all the boys whose papas take GLEANINGS have been careful not to learn to smoke. I prize what has been printed in the "Tobacco Column" more highly than any thing else in GLEANINGS—not that I undervalue Our Homes, but there are a thousand people who will speak and write on the subject treated there, where one can be found who will say a word against the use of tobacco, except in a mild and general way; and so unpopular is it, that hardly a newspaper or magazine can be found that will print a decidedly outspoken article on the subject. And when we think of the number of professing Christians who are slaves to the use of tobacco, it is appalling; "their name is legion." I can count quite a number in our little neighborhood. They will "speak in meeting," and say they feel that they have reserved nothing—all is laid on the altar. Now, I believe these people are real Christians, but they have not been aroused on the subject; "their eyes they have closed," etc. I know a man about 30 years of age who has been a professing Christian for 15 years; has used tobacco all the time, and is Sunday-school superintendent in one of the churches of this place. I believe he has never been known to "take a chew" during the hour he is engaged in this exercise. He also teaches a district school near here; and although it is not known that he uses tobacco during school hours, he makes a free use of it morning, noon, and night, giving and receiving it from the boys of the school who are addicted to its use. Now, if it were possible to exclude all superintendents and teachers, what shall we say of Christian fathers who

have an influence over their sons that no teacher can have, and yet indulge in its use without apparent shame, and other fathers too?

I am very glad of what you are doing to bring about a tobacco reform; and may we not hope, when liquor has been banished from the land, and people are aroused on the subject, to see the boy who now walks proudly with a lighted cigar, slink out of sight behind a corner, or hide in an alley to indulge his morbid taste? And may we not look still further, and confidently expect a time when the American people will arise in their might and put it from them? Let us remember the words the Lord spake to Joshua, that the children of Israel should go up and possess the land—"Only be thou strong and very courageous."

I have been led to think more on this subject of late, by reading a book, written by an aged minister residing in this vicinity, whom I have known for years. I will send you a copy of the book. His object in writing the book was to inform the young of the evil effects of tobacco, both on mind and body. He has been studying the subject for a number of years, and finally decided to publish a book at his own expense, that the youth of the land might be warned, giving incidents from his personal observation, and opinions of eminent physicians, etc. He has not undertaken this work with a view to money-making, but solely to benefit mankind; and he assures me that, whatever profits are derived from its sale, will be used to print more books. While preparing himself for his life-work, he was a student at Oberlin for some time, completing his studies afterward. He has spent a long and useful life in the ministry, and now, in his old age, to help rid the world of this tobacco curse, he is willing to give the greater part of his earthly store. Surely a little of that spirit of self-sacrifice manifested by the Savior remains with his followers. The price of the book is 50 cts. Will you be so kind as to read it and give it such notice in GLEANINGS as you may think best? Please let me know. I wish every subscriber of GLEANINGS would purchase this book. All having sons opposed to the use of tobacco, and those having no children, could make it do a good work by placing it where visitors and hired help could easily pick it up; and those having daughters only could make it useful in the same way. I think it would be a good book for Sunday-schools and public libraries.

MRS. J. B. RATCLIFFE.

Amboy, Minn., Feb. 1, 1889.

My good friend, I am exceedingly obliged to you for having given us a good stirring-up on the tobacco reform. In the crowd of other matter that is sent in for GLEANINGS, we have sometimes inclined, when deciding what *must* go in and what *might* be held over, to say that the Tobacco Column is not of any special importance "for this present issue," so it lies over for something else. There is almost always, however, a protest by myself when a single number goes to press without at least something on the subject. I am exceedingly obliged to you for the copy of the little book, and I want to say to our readers that it is a perfect gem so far as the subject on hand is concerned. There is not any dry reading in it. It is all, or pretty much all, stories from actual experience. One is reminded of an experience meeting where those who attend rise up rapidly, one after

another, and give in their testimony. The book is so interesting that, if the hired man or boys should open it almost anywhere, they would read and read, and then turn back until they had read it through. I really believe, as you say, that it will pay us to buy it and leave it around where people will get hold of it. You may tell the author that I want 100 copies right away; and those who find it more convenient to order of us instead of the author, N. A. Hunt, Mapleton Station, Minn., can do so.

We will furnish it at 45 cents, by express or freight with other goods. Now, then, friends, if you want to help along in this work, order one or more copies, as you can afford, and "leave them around," as our good friend Mrs. Ratcliffe expresses it. The book is neatly bound, and contains 192 pages, so that the price, 50 cents, is not very high.

Since the above was in type we have the following:

Mr. N. A. Hunt:

I am glad to receive a copy of your book—a broadside against tobacco. I have read it from beginning to end, and believe every word of it. The book is fair and moderate in tone, without exaggeration or over-statement, nothing bitter or fanatical in it; yet it is a terrible arraignment of the mischievous and unworthy habit. I wish all the 5000 copies were sold, and another edition twice as large called for.

Jas. H. Fairchild, President Oberlin College.

It is refreshing to know that so great an authority as the President of Oberlin College so warmly seconds what I have just said in regard to the book.

RAMBLE NO. 11.

THE RAMBLER'S IDEA OF WHAT A BEE-SUIT SHOULD BE.

BEFORE getting off upon this ramble I wish to call attention to something else that is an immense success in my every-day work in the apiary.

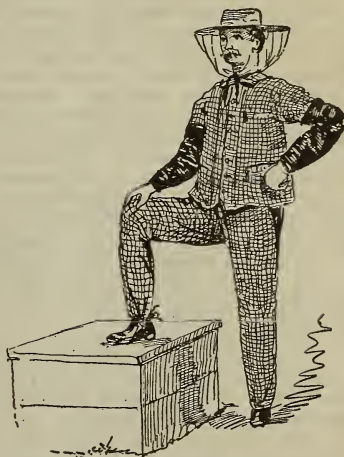
So far in bee-literature I have not read of nor seen illustrated a really full dress-suit especially for bee-keepers; nor have I seen any thing systematic in dress in any of my rambles. The Rambler tries to be a tidy bee-keeper, and has given bee-dress much attention.

A special work-suit must have several essentials. It must, or ought to be, light in color; easy to put on or off; must protect the entire person, and be of a color, make, and texture, to stand frequent washings.

Duck overalls and aprons usually worn are clumsy and inconvenient for all of the above purposes. Getting thoroughly disgusted with the "stickativeness" of my clothes I rambled to a clothing-store and found what is called an engineer's suit—overalls and short coat, or blouse, made of blue and white checked cotton cloth, the whole weighing only 1½ lbs. Cost "zhust von tollar, zhust a fit, and zhust the thing." The beauty of this suit is the certainty of complete protection to your Sunday clothes if you choose to wear them; and the price enables you to own two suits, and wash often, and always clean. Then there are plenty of pockets fore and aft, for pencils, jack-knives, screw-

drivers, queen-cages, toothpicks, etc. There are those who may possibly object to appropriating or adopting an engineer's suit to bee-keeping; but, friends, if a mortal man or woman, conducting an apiary of two hundred colonies of bees, isn't an engineer, who else indeed is worthy of the name?

When extracting honey, or at work with stickiness that is certain to get on my arms, I put on an additional set of sleeves. What are called gossamer sleeve-protectors have been extensively advertised; but my experience with them proves them to be a humbug. Try to wash them off, and they wet through; then they are of such a stingy pattern that the elbow is not reached. I now use a sleeve made of a new manufacture of oil cloth, thin, flexible, and absolutely water-proof, reaching generously above the elbow, and secured at wrists and arms with a peculiar button. These buttons are also on the bottoms of the overalls and on the coat-sleeves. Rubber bands work well at first, but they soon become a "vexation of spirit."



THE RAMBLER'S COMPLETE WORK-SUIT.

For head wear I prefer a stiff straw hat, with a 3¼-inch brim, over which a silk brussels-net veil is worn in the ordinary way. A hat-brim of the above width enables the veil to give protection to the Rambler's three-inch nose. There are other bee-keepers who would probably need a wider-brimmed hat; but a slouch hat should be avoided, as partaking too much of the nature of a cow-boy style.

The Rambler could never tolerate a white veil with black portion before the eyes, as there is always more or less strain on the eye through the contrast of color; and then such a veil never remains half black and half white. The white soon tries to get to the shade of black, but never attains to it, but gets dirty enough to look very untidy. The Rambler has seen some horrid bee-veils, and, rather than wear them, would prefer stings.

To hold the veil snug around the neck I prefer a stout cord with a slip-noose. This isn't half the bother it is to tuck it under the coat; or if it is desired to put the coat-collar over, it is already drawn up nicely for the purpose by the cord. A net veil can be slipped off the hat, and carried in the vest pocket.

I am also particular in relation to foot-covering. I have seen bee-keepers stamping around the yard with heavy No. 10 cowhide boots, or even rubber boots, with the trouser-legs tucked in. This style may do for drawing manure, ditching, or other menial work, but are clogs to feet, body, and mind, in the bee-yard. There is nothing easier than a good lace or button shoe. I prefer a leather shoe for durability; and for wet mornings I slip on a pair of rubbers. Cloth shoes of various styles are very easy, but objectionable on the above grounds.

The foregoing, therefore, is the Rambler's ideas and practice in relation to bee-dress; and to keep up my reputation for liberality, I give it to the fraternity. Don it, my friends, and you will some day rise up and bless the

RAMBLER.

P. S.—Please wait a few minutes, friends. I will now start on the ramble as soon as I get "Nig's off hind shoe set."

R.

Friend R., I think you have hit the nail on the head this time, even if you did not ramble. When I am working among the bees, I can not bear heavy boots, nor heavy clothing of any kind. Our engraver has made a very neat-looking young man, as you may notice, in the picture. Your foot on top of the hive looks a little as if the pant-leg were tied up with a string. I used to wear cloth or kid gaiters; and when in a hurry I have often wrapped up the leg of my light pants, and pulled my stocking over it. This made a sure thing of keeping the bees out, but it did not look very becoming, especially when ladies called to see the apiary. One trouble about dressing, especially for our vocation, is that most of us have to rush from one thing to another in a hurry. Ditching, hauling manure, etc., may be the regular work of the day until something calls us to the bee-yard, or we happen to have a little spare time. I have often admired the suit worn by our railway engineers, especially when they put on a clean one, and I believe the same rig would be handy and convenient for a good many kinds of farmwork.

THE HONEY EXHIBIT AT THE COLUMBIAN CENTENNIAL.

PRESIDENT MASON GIVES FURTHER FACTS CONCERNING IT.

FRIEND ROOT:—In GLEANINGS for Dec. 15th I described your exhibit at the Ohio Centennial Exposition, as shown in the picture on page 959. I think I am safe in saying that not one-fourth of your exhibit is there shown, and I will but briefly mention the remainder.

Across a passageway, to the right of your exhibit as shown in the picture, on a platform, was shown a one and a two story chaff hive all complete for extracted honey, and so arranged that, at the desire of any interested visitor, some of us were ready to transform either or both into hives for comb honey in a "jiffy." Here was also displayed a bee-tent made of mosquito netting; a roll of 600 square feet of wire cloth; a large roll of perforated (or queen-excluding) zinc; some force-pumps, sections, etc.

On the further side of the table, but not to be seen in the picture, there were smokers, sections in

all shapes; foundation, both thick and thin; foundation fasteners, ready for business, and they were frequently put to the test too. There were also price lists, and sample copies of GLEANINGS, hundreds of which were distributed. On this table, and within easy reach, was always kept a goodly supply of your cards offering \$1000 for evidence that comb honey is made by machinery.

On the platform beyond the table was a large assortment of Langstroth and Simplicity hives in all sorts of combinations; slatted honey-boards, metal honey-boards, wood and zinc honey-boards, wooden frames, metal-cornered frames, chaff cushions, division-boards, separators, section cases in endless variety, with and without sections, and with and without starters. It was just wonderful what a variety of combinations could be made with what was here shown. Wondering and inquisitive bee-keepers could in a moment have a hive rigged out for operation. It was as good as a box of monkeys, for fun, to see your men or some one else of our company make up a hive for any purpose, or to suit any inquiry.

Two kinds of section-folders were always in running order; and boxes of sections, made on your section machinery at Power Hall, were always handy by so as to demonstrate to visitors and customers just how it was done.

One day when we were all busy showing off things to the crowd, some boys took it upon themselves to fold a lot of sections with one of the machines, and, when first noticed, had folded as much as a two-bushel box full. Perhaps if they had thought it was work they might not have folded more than a dozen or two, and then have been "tired out."

On the platform, at the left of the picture, were shown some 60-lb. honey-cans with their accompanying boxes; a lawn-mower that was so cheap and good that I brought it home with me; a solar, a Swiss, and a Jones wax-extractor, and some swarm-catchers.

Next to the display of queens, I don't now remember of any one thing that you had on exhibition that attracted so much attention, and called forth so many remarks, as did the straw bee-hive you took the trouble to get from Connecticut, I believe. We had it labeled, "Straw bee-hive over one hundred years old." People were not satisfied with looking at the outside of it, but had to turn it over and look inside also; and when we would tell them it was the same shape inside as out, they would still turn it over. I sometimes wished that it contained a colony of bees that were first class in the stinging line.

A great nuisance at such times is the very bad habit so many people have of leaving things just as they happen to be when they get through examining them, evidently not having "a place for every thing, and every thing in its place" at home.

The large sign, "Exhibited by A. I. Root," in the top of the picture, looks all out of proportion to the rest of the exhibit; but it was not, and I have not the slightest idea why it looks as it does. It was a neat, tasty, and cheap sign, and all the exhibits would have looked better with a nice sign over them.

Perhaps some exhibitors may want to have such a sign at some county or State fair next fall, but might think it is too expensive. Aside from the boards, either rough or dressed, the cost is but a few cents. Mr. Will Weed, who had charge of your exhibit, was

quite anxious to have everybody know that the exhibit belonged to A. I. Root, and seemed bound to have a sign painted that would have cost several dollars, from four to six, I believe; but "older heads" didn't think it was best; but he could not give up his wish, and so took two boards, about nine inches wide and six to eight feet long, and fastened them together with strips on the ends, and covered the whole, both sides and edges, with white paper. He then took some red card-board and cut it into strips and pieces, and then tacked them on with small tacks, making the name A. I. Root, as shown, the A being made of three pieces, the I of one, the T of two, the R of seven, and the O's of eight each. These letters were put on both sides, and it made a very neat sign. I believe the above letters were about a foot high. The letters in "Exhibited by" were each of one piece, and were about three or four inches high.

To the left of the picture and your exhibit was quite a variety of appliances used in the apiary, consisting of an exhibit by Dr. G. L. Tinker, in which was a box hive used over 40 years ago in Eastern Ohio, and a small straw hive that was used over 60 years ago in the same locality. The doctor also exhibited a double-walled hive, several of his "storifying" hives, for either comb or extracted honey, several section and extracting supers, quite a variety of honey-boards, among them his wood and zinc queen-excluding; strips of perforated zinc; four-piece poplar sections, smokers, cartons, drone-traps, some crates of poplar honey, two colonies of his Syrio-albino bees, and three nuclei for showing queens. To those who have seen any of the doctor's "handy work" it will be unnecessary to say it was first class in every respect.

Dr. J. C. Oldham, of Springfield, O., exhibited an invertible and divisible shallow-framed storifying and interchangeable hive that attracted some attention, and was frequently dissected by curious bee-keepers. Near by was an Armstrong side-opening hive and side-opening T super, with sections, fixed up in nice shape, exhibited by E. S. Armstrong, Jerseyville, Ill. It attracted quite a good deal of attention, and we frequently had to put it together after parties had given it a good overhauling, or visitors would not have known such a hive was on exhibition.

Here, too, was one of Mr. James Heddon's new hives, with divisible brood-chamber, section-supers, extracting-super, a queen-excluding and a break-joint honey-board. This hive was a regular "curiosity shop" to many, and attracted much attention, and, like the other divisible hives, had frequently to be reconstructed so that its individuality might be maintained.

Here was also a straw hive from Germany, which belonged to an 80-year-old German by the name of Burchard, who lives in Michigan, and who will keep bees in no other kind of hive. It was a great curiosity. With it was an old Quinby smoker that belonged to Mr. Andrew Fabrique, also of Michigan. It was brought from Pennsylvania many years ago. By the side of this hive was an old "log gum," or bee-hive, cut from a basswood-tree, with a board nailed on one end for a cover, for which many old bee-keepers had words of affection, and many an entertaining as well as amusing story was told about cutting bee-trees by these "old-timers." These old relics were properly labeled, so that passers-by might know what they were.

Here I'm reminded of an explanation given one day by a gentleman 75 years old, being one of our largest exhibitors, a well-posted bee-keeper, and known to us as "Uncle Aaron" Goodrich, of Worthington, Ohio. Some visitors, who acted as we see people sometimes when they wish to make the impression that they are smarter than most people, were asking him some questions about the straw hives, the box hive, and the log gum, and he told them that was "the kind of hives bees used to be kept in when they had king-bees;" then pointing to the Tinker, Armstrong, and Heddon hives that were near, added, "but those nice hives, or bee-palaces, are what bees are kept in now that they have queens." Perhaps there didn't any of us bee-keepers or anybody else smile, and it can readily be imagined that the story was more than once repeated.

On this same platform were exhibited a Muth honey-extractor and a Jones wax-extractor by Dr. Besse, of Delaware, O., and a solax wax-extractor and bee-hive by Elias Cole, of Ashley, O.; also a hive and solar wax-extractor by C. E. Jones, of Delaware, O., each of whom also exhibited several good colonies of bees and a one-comb nucleus to show the queen, and one of them had 16 and the other 17 queens in queen-cages, for exhibition.

In the right-hand upper corner of the picture on page 959, above referred to, is shown a portion of the exhibit of C. E. Jones, which consisted mostly of comb honey in crates, the crates being interspersed with extracted honey in different styles of packages, and a display of honey-producing plants. He also had two candy-jars that had been filled very nicely with honey by the bees.

To the left of the above exhibit was that of Mr. Elias Cole, of Ashley, Delaware Co., O., composed largely of extracted honey in glass, and placed on shelves. It will be noticed, by referring to the picture, that some of the bottles look black and some white. That is owing to the different kinds of honey. When the picture was taken, that which is white was candied; and the other, which is alsike-clover honey, was not. The wall above the exhibit was decorated with flags, etc.; and over the left portion of this exhibit, almost entirely hidden by the large sign, was festooned a large American flag. To the right and near the top of the wall may be seen a display of over 140 honey-producing plants, each one numbered and named.

On the platform below the exhibit, but hidden from view, was a foundation mill, smokers, honey-knives, samples of foundation, comb honey in crates, beeswax, etc. Near the center, at the bottom of the shelves, may be seen a part of a diminutive house that attracted the attention of all the little folks who espied it, and many an "old folks" was attracted by its novelty. It was a regular house made in the form of an L, with chimneys, doors, and windows. Lace curtains were at the windows, so looped back as to show the nice honey within. It had a veranda, with diminutive people sitting on it; a pump near the door; a fence around the dooryard, which contained evergreens and shrubbery, and, to complete it as the home of honey-bees, small bee-hives were sitting in the yard. To complete the picture, a sign, "This Property for Sale," was standing in the yard.

At the left of Mr. Cole's exhibit may be seen a portion of the exhibit of our family, consisting of comb and extracted honey, honey-plants, honey-

cakes, and cookies of several kinds, honey-candies, honey vinegar, honey wine, honey-knives, foundation, beeswax, and Bingham smokers sent by Mr. T. F. Bingham for exhibition. At the right of the exhibit, but hidden by your Sturwold show-case, is another of your Sturwold cases filled with fine comb honey, and, standing on its top, one of Mr. E. O. Tuttle's bee-keepers' medleys.

A description of what was on the other side of the building, and of your section machinery, etc., with some incidents connected with the exhibition, may be given in the future.

A. B. MASON.

Auburndale, O.

Now, doctor, I am going to complain a little. From the above it is quite evident that, day after day and week after week, you explained things, and showed your visitors all around—told them long stories; yes, you even took pains with every old lady, and I suppose every juvenile too; and yet when I came around myself you did not show me about nor tell me any of these wonderful stories at all—at least if you did I can not remember it—that is, I do not remember very much about it. I did not know until just now that there is a bee-keeper in Michigan who still keeps bees in straw hives. You say the man's name is Burchard, and that "he lives in Michigan;" but how in the world are we going to visit and see an old-time apiary, without knowing what part of Michigan it is in? I want to tell you, friend M., that Michigan is a very big place. Your story is so interesting that I feel now as if I would give a good deal to see "Uncle Aaron" and all the rest of those other good friends we always meet at our Columbus conventions. By the way, I have just asked Ernest why we did not have a convention this winter. He says we had our convention in conjunction with the great national, and the bee-keepers thought that that was convention enough for quite a spell. I do not agree with him, however, and I hereby give notice that, when there is another Ohio bee-keepers' convention, I wish to be invited.—Just a word about that sign. Mr. Weed wrote me that he thought we ought to get a good nice big sign, even if it cost several dollars. I told him that I thought something transient would do very well. But when I got down there I said to myself, "There, the boys have gone and paid out quite a lot of money for a sign, after all;" but as we went there to have a picnic I thought I would not scold, but just make believe that I was pleased, you know. Pretty soon I remarked to Mr. Weed, "Why, Will, you did go and get a nice sign, after all, didn't you? But, didn't it cost a good deal of money?" And then they had quite a good laugh when somebody said it did not cost half a dollar all together. Now, friends, you can make very handsome signs, to be put up indoors, not exposed to the weather, with a pair of scissors, some tacks, and some colored paper. Why, there was not a prettier nor a plainer sign on the whole centennial grounds than that one.—Doctor, you do not tell us who got up that little house and dooryard, etc., with the house "chuck full" of honey. Did that little sign bring a customer?

HEADS OF GRAIN FROM DIFFERENT FIELDS.

DR. A. B. MASON'S OPINION OF THAT NEW PRESS STRAINER.

I AM glad you have the press strainer for sale, that you illustrate and describe on page 130; and so cheap too. I told one of your men at the centennial that you ought to have them for sale. At the earnest solicitation of "Uncle Aaron" Goodrich, one of the exhibitors at the Exposition at Columbus last fall, who lived nine miles away, I went home with him one Saturday night to spend the Sabbath with him and his family; and nicer potatoes than were on their table it had never been my privilege to eat. (I hope Mrs. Mason will not hear of this.) Monday morning at breakfast I got up courage enough to ask for their way of fixing them so nicely, and learned that it was done with just the kind of press you describe. They had been sold from house to house by an agent, for one dollar each. I found them for sale at a "general store" near where "Uncle Aaron" lived, and bought one for fifty cents. I would have willingly paid a dollar for it, and felt that I had the worth of my money. Mrs. Mason makes as nice bread as I ever tasted (I don't care if she does hear of this), and uses mashed potatoes in doing it; and when I showed her how the press (or "tater smasher" I call it) made the potatoes so "fluffy" you "just had oughter seen" her smile. Try to induce every husband to get one for his better half, and every "feller" to get one for his "best girl," if her father hasn't already got one for her mother.

Auburndale, O., Feb. 20, 1889.

A. B. MASON.

CONTRACTION, AND HOW FAR IT MAY BE CARRIED
WITH ADVANTAGE.

If the brood-nest is contracted to 5 or 6 frames in the Gallup hive, will the queen be more likely to lay in the surplus apartments? If so, is not side storing preferable? Do bee-keepers always use queen-excluding honey-boards if contraction is practiced? When the brood-nest is well filled with brood in the spring, is it advisable to spread the combs and insert about two empty combs in the center, in order to increase brood-rearing?

E. S. MEAD.

Olivet, Belmont Co., O., Feb. 6, 1889.

Friend M., if contraction of the brood-nest is carried to extremes, of course there will be a greater liability of the queen going above to deposit eggs. If the colony is good and strong, a brood-nest of 8 Langstroth frames ordinarily will not require to be contracted. With a colony of moderate strength, and in a moderate honey season, it may be desirable to reduce the brood-nest to 5 or 6 frames.—As we have had but very little experience with the Gallup frame, we could not advise you in regard to contraction for a frame of that dimension.—Queen-excluding honey-boards are, we think, an advantage where the brood-nest is reduced to $\frac{2}{3}$ or possibly $\frac{1}{2}$ of its full capacity. A great many prominent bee-keepers do not consider their use essential, while others are just as positive that they are an advantage. In regard to spreading brood, we advise you to see an article from the pen of G. M. Doolittle, in a late issue.

SQUARE VERSUS ROUND PACKAGES FOR 10 LBS. OF EXTRACTED HONEY.

Last fall, when I was visiting some of the towns of Texas in which so much California honey had been sold two years ago, I found nearly all the merchants pleased with and wanting the California style of packages for extracted honey; namely, the square tin can holding 10 lbs. of honey, packed 12 in a crate, and sold by the dozen. I promised some of them the packages for the coming season; but where can we get them? You don't sell them, as it seems. I called the attention of some of the merchants to the fact that there was only 10 lbs., light weight, but they said they didn't care for that. I hope the editor will look well into this matter. Give us these packages at a fair rate, and we can compete with California in extracted honey.

Bright Star, Ark., Jan. 1, 1889. T. J. MARTIN.

We can furnish the one-gallon square cans put up ten in a box, and shipped from St. Louis, Mo., or from Medina, Ohio, in lots of ten boxes, at \$1.40 per box; in lots of one hundred, \$1.30 per box. Although we have not heretofore advertised them, the new edition of our price list will contain prices about as above. You will notice that the prices quoted are about the same as for the round cans of the same capacity. For economy of space, convenience in boxing and shipping, the square style of cans is very much superior. These and other considerations will make them the favorite shipping package for holding about 10 lbs. of honey. See another column.

STIMULATING BROOD-REARING WITH RYE FLOUR.

Can I start brood-rearing with rye flour, without feeding honey or syrup? When there is plenty of sealed stores in the hive, about what amount of the rye flour would I need for 55 colonies, to have them in good shape for the honey-flow? White clover and wild raspberry are the staple honey-plants here. There are several good orchards within range, and sumac is plentiful. Basswood is scarce.

Myrtle, Pa.

E. A. PRATT.

You can start brood-rearing with rye flour, without feeding any honey or syrup, provided the colony has plenty of stores in the hive. If the season is favorable for meal feeding—that is, if natural pollen is slow to make its appearance—you may feed several bushels of rye flour to your bees before the pollen comes; but we are not quite agreed that there is always a positive advantage in feeding rye flour. I have known bees to store so much rye meal in their combs that they did not succeed in getting rid of it, and it remained there the season through. Better not overdo it.

SUCCESSIVE SWARMS OCCUPYING THE SAME PLACE OF CLUSTERING.

Are swarms attracted by the scent of other swarms, or why do they so often cluster on the same object? During the past summer our swarms, with few exceptions, settled on the same tree (a peach-tree), notwithstanding there were other trees of the same kind in the apiary. I have hived as many as four swarms from the same tree, in a single forenoon. In fact, it became such a common occurrence that, when a swarm issued, it was easy to guess where it would alight. This state of affairs continued until the poor tree really became an object of pity, being almost destitute of

limbs. As many of the swarms were quite large, their weight was more than the tender branches could bear, and many of them were broken off.

SARAH E. DUNCAN.

Lineville, Iowa, Feb. 12, 1889.

The fact you mention has been brought up before, a good many times. You will find it spoken of in the A B C book. The subsequent swarm was probably attracted by the scent left by the bees and queen of the preceding swarm. Little particles of wax may sometimes be found attached to the limb, and these particles may be a factor in inducing the bees to seek this point.

LARGE OR SMALL HIVES FOR BUSINESS.

Friend Root, you have asked me a question in GLEANINGS, page 61, that I am just prepared to answer from actual experience. May 11th I cut a beehive, and there was about a quart of bees in it, and about 5 lbs. of honey. I put the bees and honey in a box with 6 frames 9 inches deep, and 17 inches long. I carried them home, set them on a bench by the side of a strong colony in a 10-frame hive. The small colony filled their 6 frames full by July 17th, and I put on top 24 1-lb. boxes, and they filled them. The 10-frame hive swarmed twice, and made just 6 1-lb. boxes full, and the first swarm made enough to winter on. The second swarm did not. In this case the small swarm is the better.

Wistar, Pa.

SETH NELSON.

Friend N., you give us good proof that a small colony may do better than a large one; but we should by no means conclude that this is the case in the majority of instances.

SOME GOOD NEWS FOR BEE-KEEPERS WHO HAVE TO PAY FREIGHT RATES.

Friend Root:—The bee-keepers of our country will be gratified to learn that one of the great railroads, the Louisville & Nashville (reaching from Cincinnati to New Orleans, to Memphis, St. Louis, and many other important points) issued a new local freight tariff and classification table last month, and a good many changes were made in our favor. The rates are not materially changed, but the new classification of articles in our line is what makes the reduction. For instance, "Bee-hives, set up," are changed from double 1st class to 1st class; same in the flat, crated, from 3d to 6th class (which is the same class as box material and lumber); honey, from 2d class to "honey in glass or tin, boxed," also "comb honey boxed," 3d class, if released, "honey in barrels or kegs," 5th class, released. All honey is 1st class if not released. Honey-extractors, crated, and smokers, boxed, are 1st class; beeswax is changed from 2d to 3d class. A "low tariff" letter from your humble servant to the General Freight Agent, about 3 months ago, may have dropped in opportunely, as the new tariff was being made up; and may or may not have had something to do with the changes. That matters not, though. The result of the revision is gratifying to us bee-people, and we appreciate it enough to "stand by" the "old reliable" L. & N., and give her our traffic whenever we can.

Wetumpka, Ala., Feb. 4, 1889. J. M. JENKINS.

Friend J., this is indeed good news, and we hereby express our hearty thanks to the L. & N. Now, then, can't their tariff rates be submitted to other roads, as a means of inducing them to go and do likewise?

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 109.—*Do the drones subserve any useful purpose in assisting to keep the brood warm after swarming?*

Sometimes.

GEO. GRIMM.

I think they do.

DR. A. B. MASON.

I believe that they do.

CHAS. F. MUTH.

I have always thought so, when natural swarming is allowed.

P. H. ELWOOD.

I seldom find sufficient numbers of them left in the hive to affect much.

R. WILKIN.

I guess so, but I am not sure. Let the apicultural entomologists post us in regard to this.

JAMES HEDDON.

Not any more than the workers that could be raised in their space and with their food.

DADANT & SON.

I suppose enough drones would keep the brood warm without any workers; but I think the same number of workers would do it as well, at less expense.

C. C. MILLER.

They may at times, when it comes off cold immediately after a swarm issues; but I think the cases are rare where the drones are of any use inside the hive.

G. M. DOOLITTLE.

Of course, all bees help keep up the temperature of the hive; but I should much prefer workers to drones. I am sure that few drones in the hive is the correct policy.

A. J. COOK.

I think it very doubtful. If they do, their use is not appreciated by the rest of the colony, as they are generally required to move into some corner of the hive, out of the way.

H. R. BOARDMAN.

I think they are of some assistance. I advise a limited amount of drone comb in each hive. I think all of the facts will not warrant the supplying a large number of drones.

L. C. ROOT.

I think the brood has sufficient vital heat of its own to keep warm, usually, in swarming time. In case the hive was a very bad one, or an untimely cold spell should occur, the drones might be useful.

E. E. HASTY.

I have failed to come to any conclusion in that regard, but I am inclined to think that they do not. Take a colony and sift the drones out, and another with drones, and you will see that one does as well as the other.

PAUL L. VIALLO.

Possibly they are of some use for this purpose, but their presence can generally be dispensed with without any detriment, as, at the swarming season, the weather is usually so warm that a very few bees will keep up the temperature of the hive. I have known a drone to hatch after lying on the top of a hive in the shade for three days and nights, no bees having been near it during that time.

JAMES A. GREEN.

The answers to these questions remind me of the time when I used a queen-nursery made of a lot of cages, so as to have a dozen

or two queens in one hive. When the queens were old enough to get fertilized I let them out one at a time, to take their wedding-trip. It all went very well until the bees protested against having a new queen every day or every other day. They began to ball them to such an extent that it spoiled the business. As a remedy, I proposed to have a colony all drones and no workers. The drones would keep the brood warm, and afford the new queen a refuge. Of course, they would not care a cent what queen nor how many queens there were at a time in the cluster. Well, it all proved true, and more too, for they did not care a cent how many robbers came in and loaded up and went off. My next project was to find a locality where no bees were near enough to rob; but as I did not at that time find any such locality around here, my plan of raising queens about as easily as you raise cabbage-plants went by the board.

QUESTION 110.—*Suppose two or more commission firms in the same city—distant from your home—solicit consignments of honey from you, and you know them to be equally reliable and capable. They watch arrivals, and know to whom your honey goes, in that place at least. They are not confined to your honey alone, but have consignments from others as well. Would you ship all your honey (for that market) to one of these firms, or divide your consignments between them? Give reasons for your decision.*

I think I would deal with one. This would involve less expense and trouble in the whole transaction.

A. J. COOK.

I would not ship to either, but employ my leisure moments in selling it at home and in the vicinity of home.

MRS. L. HARRISON.

Under the above circumstances I would ship to both. Two salesmen, each with a line of customers, are better than one.

GEO. GRIMM.

I would ship to only one commission house in the same place. You can not afford to enter into competition with yourself.

H. R. BOARDMAN.

Divide consignments, because there is a better chance to make your name known, and because you can best tell which firm is best.

DADANT & SON.

My custom has been to send or sell all to one party, as I prefer to receive one full remittance. There might be reasons for dividing shipments.

L. C. ROOT.

I would divide the consignment, believing that each would be interested in making better returns than the other in order to secure further consignments.

R. WILKIN.

If I could get no information as to which one has done the best, I would divide to find out. I have divided my shipment on some occasions, shipping on the same day, and the returns were at least 15% difference in price sold, although the honey was all of the same grade.

PAUL L. VIALLO.

In one city, I would confine my consignments to one firm, under ordinary circumstances. Reason: To prevent competitive ambition. I have seen the case in our city, where a carload of comb honey was consigned to two commission merchants, who ran down the prices of each offer in order to effect sales.

CHAS. F. MUTH.

If the crop were a small one I would send it all to one, in accordance with the proverb that says, "Don't make two bites of a cherry." Were the crop large I would send some to each, in accordance with the proverb that says, "Don't put all your eggs in one basket." Too many men in the honey-trade tends toward cutting under in prices. Too few men in the honey-trade tends toward an imperfect cultivation of the market. E. E. HASTY.

I would ship all to one firm. By so doing, the one who gets your consignment will feel better toward you than if you divided it. There are reasons both ways as regards the action of the commission merchant; but it is much less trouble to make one deal than two. We country people are too much prone to suspect the action of business houses in the city. In many cases we make ourselves ridiculous in that way. JAMES HEDDON.

That's a tough one. I've practiced both ways. I would ship to one firm alone, because it would be less trouble; and if small shipments, a little less expense; the firm would have a more friendly interest in my sales knowing they had all my shipments, and my honey would not be in competition with itself.

I would ship to both, so each would try to outdo the other in getting me a good price, and to find which one would do best for me, and because each may have his own customers. C. C. MILLER.

Of late years I have never shipped more than 500 pounds of honey to any one commission house, and have found that I obtain better prices than I formerly did. The principle seems to be, that there are more parties that want only from three to five hundred pounds of honey than there are who want larger lots; and where one sale will dispose of a whole lot at one time, the commission merchant prefers it that way, to the breaking-up of a large lot. If the commission merchant is honest and reliable, he should work to your advantage, whether he knows that he has your whole lot or otherwise. G. M. DOOLITTLE.

I think I should ship all to one firm. I have had no experience in sending honey to commission men; but if they all feel as do the commission men here in Toledo in regard to other kinds of consignments, it would be much better to send all to one firm. There are two good reasons for doing so. One is, that the commission man is more interested in the disposal of the consignments of parties who give him *all* their trade. Another reason is, that it tends to raise the price. If one has consignments and the other has none, he will feel like offering an advance in price, in order to secure a consignment. DR. A. B. MASON.

I would do as I thought right and best. The reason is, that, if your venture proves a bad one, you can say to your wife or other guardian that you did it for the best, etc. 1. I would send an equal quantity to each, with the understanding that the one who makes the best returns shall have a prize—either a chromo or a mouth-organ. 2. I would send all my honey to one; for if you let them both have it, the first thing they will do will be to run down the price; Jones will come in and say, "I can get Smith's honey over at the other shop for 10 cents a pound." Shopkeeper No. 2 will say that he will sell you Smith's honey for 9 cents. In a short time the price will be away down below the cost of furnishing

—another illustration of overproduction, and that prices are regulated by supply and demand, and not by trusts, monopolies, combinations, strikes, and tariff. 3. I should not send any thing to either of these men, but I would sell to the man who offered me a reasonable cash price. This is the only good way to establish a satisfactory honey-market. When nine-tenths of our honey-producers do this, we shall have a satisfactory honey-market, and not before. If you send no honey to either of these men, you will probably know enough to keep away from that town, as "they watch arrivals." P. H. ELWOOD.

Ship to only one commission firm in the same city, if you know that one to be reliable, otherwise there is likely to be competition and underbidding. This is especially the case if there is any difference between the two lots. Call one commission man A and the other B. Jones ships No. 1 honey to A, and some not quite so good to B. A's judgment is, that he can get 16 cts. for his lot of honey, while B puts a price of 15 cts. on that consigned to him. Smith, a sharp unscrupulous buyer, goes to B, inquires the price of that lot of honey, and is told 15 cts. He moves on to A, and prices Jones' honey. "What, 16 cts.? Why, I can get just the same honey down at B's for 15." A doesn't want to be undersold, so he probably replies that he will sell honey as cheap as B. Perhaps, to make a trade, he offers it at half a cent less. Back goes Smith to B, and says, "See here; A is selling honey at 14½ cts. that is a good deal nicer than this, worth fully two cents a pound more. If you'll come down to a reasonable figure, I'll take five cases of this; but if you can't, I'll go somewhere else." The result is, that Jones's honey, in competition with itself, lowers its own price. JAMES A. GREEN.

I do not know who asked the above question, but I suspect it was somebody who felt a little sore over some transaction, and wanted to see whether we as a crowd were sharp enough to pick out all the points in the case; and it is those who have had a rich and ripe experience who see difficulties first. For instance, our good friend Muth is the first one to see the danger that your stock of honey will be running against itself. Friends Elwood and Green develop this state of affairs still further. Friend Hasty tersely puts it by directing attention to the two dangers by referring to two opposite proverbs. Friend Heddon closes with a grand truth. We country people are too prone to suspect the action of business men in the cities. Wholesale denunciation of commission men is one of the saddest blunders a body of bee-keepers ever fell into.

QUESTION 111.—Which will make the better working colonies during the working season—that is, secure the most honey—those that require from 20 to 25 pounds to carry them through, or those that will get along on from 5 to 10 pounds while in winter quarters?

I think as a rule, such as consume the lesser quantity are the better. L. C. ROOT.

A strong colony always consumes more honey than a weak one, and a strong colony always secures the most honey. CHAS. F. MUTH.

I suppose this question has reference to large or small colonies; if so, I should say the large one.

The one that has the most bees will make the most honey.

E. FRANCE.

As a rule, those that winter on a small amount of honey in proportion to the number of bees in the hive; or, in other words, those that hibernate most perfectly.

P. H. ELWOOD.

Under the same conditions, the colonies requiring most honey for wintering will prove the most profitable the next season. Taking every thing into consideration, though, I do not care for extra-strong colonies in the fall.

J. A. GREEN.

It all depends on the queen. If the strength of the colony, when it goes into winter quarters, is the gauge of the prolificness of the queen, then the strong colony would likely make the better working colony, as the queen, judging by the past, would likely be the better layer of the two.

MRS. L. HARRISON.

The colonies that require the greatest amount of stores to "carry them through," as a rule will be able to do the most work during the honey-season, because most of the stores consumed are in brood-raising; and the colonies that raise the most brood will, as a rule, be strongest at the beginning of the honey season.

H. R. BOARDMAN.

I do not think this question can be answered, as so much depends upon the mode of wintering and quality of queen. I prefer to have a colony eat but little in winter. This indicates a repose or restful condition, that I think favorable to the bees. Disturbance or disquiet causes undue eating.

A. J. COOK.

It is not the amount of stores a colony consumes in winter quarters that enables the bee-keeper to judge of its working qualities. Some of the best working colonies I ever had consumed less than seven pounds of stores while in winter quarters. One of my poorest colonies last season was one that lost over 20 pounds in weight while in the cellar.

DR. A. B. MASON.

That depends. If the 25-pound eaters are ravenous because they are worrying and unhealthy, they will be very apt to come out number two in the honey-harvest. If they use the extra stores in rearing brood, they may gain or may lose by the process—more frequently the latter, I think. I rather prefer that all over 16 pounds be hanging in the comb-closet, to be given back to them in the spring, if desired. Bees that (in a moderate climate) will not go through the winter on 16 pounds had better be dead than to live and propagate their greedy race.

E. E. HASTY.

Our bees have always wintered the best when coming through with the least depletion of numbers, and consequently with better vitality where the consumption of stores, while in winter quarters, was small. We know by careful weighing that we once wintered a strong colony of bees, in a special repository, on two and a half pounds of honey. That season all colonies consumed a minimum amount of stores, and nearly all were strong enough to swarm about the 15th of April. I never saw any thing like it before or since.

JAMES HEDDON.

That depends. If the colony that eats 25 lbs. is no stronger than the one that eats the 10 lbs., but eats more only because it's uneasy, it is likely to come out weaker in the spring than the one that eats 10. Still, it is barely possible (although I don't

think it's likely) that, being of equal strength, the one eats more than the other because of a more active temperament, and on that account may be more active in the working season, hence more valuable. In general, however, I suspect that the colony that eats 25 lbs. is just so much stronger than the one that eats 10, in which case the one that eats the 25 is likely to be the better working colony.

C. C. MILLER.

Now, I wonder who is the author of these questions. What has the amount of the consumption of winter stores got to do with the working qualities of the colony during the next season, any way? How can we reason from an effect when we don't know the cause? Increased consumption of stores may be due to the temperature, the manner of wintering, disturbance, extra strength of colony caused by great prolificness of queens, etc., and it may result in "playing out" the queen prematurely, or it may continue the colony strong during the season. In other words, I don't think any judgment as to the working quality of a colony can be based on its consumption of winter stores alone. The colony in best condition *when the honey season opens* will ordinarily give the best results.

GEO. GRIMM.

To answer this question we had better condense what a successful bee-keeper of Italy, Mr. G. Metelli says, who got a good crop last year while bee culture was a failure in the whole country. See the *Apicoltore* for December and January:

"We use very capacious (capacissime) hives, which contain in the brood-chamber from 12 to 15 Italian frames, instead of 9 or 10, as usually." The Italian frame is about of the same size as the Langstroth, but it is placed vertically. "The colonies which, on the first of May, have hardly consumed the 22 or 24 lbs. (10 or 11 kilog.) of honey given for winter are not strong enough to make honey in spring. But we can anticipate that those which consumed from 36 to 40, and even 44 lbs., will return the honey used, and profusely."

DADANT & SON.

No colony, to winter well, should consume more than ten pounds of honey while in winter quarters. If more than this is consumed, the chances are against that colony being a very profitable one the next summer. By winter quarters, I mean the time during which the colony is in the cellar, or from Nov. 1st to April 15th. If this colony is wintered outdoors, then I should say from Nov. 1st to March 20th. After this, during the next two months, the colony should consume as much honey, if they are to be a profitable colony during the summer, as they did while in winter quarters. The size of the colony has not so much to do with the amount of stores which they consume while in winter quarters, as has the quietude or uneasiness of the colony. For summer profit, give me the colony which has been quiet during winter, every time.

G. M. DOOLITTLE.

No wonder our good friend George Grimm wonders who the author of these questions is. I suspect that A. I. Root started the matter, and I was pretty sure of the truth of what the above testimony brings out; namely, that uneasy colonies often consume a large amount of stores, without being very much the better for it; also that, when every thing is just right, a pretty fair-sized colony may winter on a comparatively small

amount of stores, and be in excellent trim for business in the spring. Notwithstanding this, however, I would rather have a colony of bees that weighed 3 lbs., even if it cost 15 lbs. to winter them, than a nucleus of one pound that could be wintered on 5 lbs. of stores. And this starts another question: About how many pounds of stores would be required to winter a pound of bees, on an average? I would suggest 5 lbs. Now, if some of our bee-hives contain 1 lb. of live bees, and others contain 5 lbs., we can readily see how it will take five pounds of stores for one, and 25 for the other. Dadant, Doolittle, and others have hinted at this thing, as you will notice.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

THE BUSH LIMA BEAN—FURTHER DEVELOPMENTS.

AFTER receiving a sample of Dwarf Carolina beans from Landreth, mentioned on page 119 of our last issue, I wrote at once, asking how low they could sell us a quantity, also asking them if these beans were not exactly the same thing as Henderson's Bush lima bean. Below is their reply:

A. I. Root—Dear Sir:—Henderson's Bush lima bean is not a lima bean at all, but a Carolina bean. We have had it for five years, and never considered it worth more than a three-line paragraph. We never propagated in quantity. Next year, if people want it, we shall be able to supply it.

DAVID LANDRETH & SONS.

Bristol, Penn., Feb. 14, 1889.

Now, it seems to me no more than just and right that the public should have the benefit of the above opinion, from so great a seedsman as Landreth. It is also just and right that Henderson be allowed to reply. I accordingly submitted to him a copy of Landreth's letter, to which he replies:

Mr. Root:—If any of our contemporaries in the trade have said that our "New Bush lima bean" is "not a lima bean at all," then allow me to say that any one making such a statement is either ignorant of botany and of knowledge of the bean tribe, or that he is actuated by motives unworthy of an honorable contemporary.

The "New Bush lima" is simply a dwarf "sport" from the Sieva (sometimes called Sewee), or Carolina lima, which, though smaller, of course, than the large white lima, is just as truly a lima as the large white lima, which is known in botany as *Phaseolus lunatus*, while the variety known as the Sieva, or Carolina lima, is *Phaseolus lunatus* "minor" (smaller).

My knowledge of this vegetable was from a correspondent in Virginia, two years ago, who wrote me that he had a field of three acres, growing for seed. I could hardly credit his description of it, because such a story seemed too good to be true; but I at once started to examine it, and I found on arrival that it was all he claimed for it—a lima, pure and simple, dwarf as the ordinary bush bean, in no way differing in pod or bean from the large White Pole lima, except in size. When I tell you that we are retailing 500 packets a day of the Bush lima bean, and that our sales, wholesale and retail, will probably reach 250,000 packets before the

1st of June, you can well understand what a serious matter it would be to us if "Henderson's new Bush lima bean" were not all we claim it to be.

PETER HENDERSON.

Jersey City Heights, N. J., Feb. 19, 1886.

Although it seems hard to reconcile these two statements from two of the greatest seedsmen in the world, I think perhaps I can help the matter. In Landreth's catalogue, 1889, first page, he gives a photograph of the bean; and I presume that, when he wrote the above letter, he had forgotten that, right under that photograph, it is called "Dwarf Carolina, or Small Lima." From the above it is evident that Landreth decided to call it a small lima bean. Besides, the picture shows a stalk literally loaded down with pods. It is not a picture gotten up for catalogue show, mind you, but it is an absolute photograph of a stalk of beans pulled up by the roots. This photograph shows that the bean in question is certainly enormously productive, just as Peter Henderson says. Now, then, if the flavor is as good as that of the large lima bean, it is certainly worth all the advertising that friend Henderson has given it, even if it is small. My impression is, that Landreth's folks had not given the bean the attention it really deserves. One thing is certain, also, that they have not any amount of seed on hand, for they say, at the close of their letter, that they will be prepared to supply it next year. Up to the present date of writing it seems that Peter Henderson has the only stock to be had, on the face of the earth. Again, on page 24 of Landreth's catalogue, right under mention of the Large Jersey lima, we read:

Carolina, or Sewee.—A small variety of lima, more easy of vegetation, more vigorous in growth, earlier in season, more profitable in pod than the above. Price \$9.00 per bushel; 45 cts. per quart.

Now, observe that the *above* refers to the Large Jersey lima. Well, if this new Dwarf lima bean has all the qualities of the lima, as quoted, and is dwarf besides, it is certainly an acquisition.

I want to call the attention of our readers to the little incident that comes out in the above, where Henderson went at once to see that three-acre field of bush limas. The act is characteristic of the man; and I presume, although he does not tell us about it, that he bought every bean on that three-acre field. Almost if not all were planted last season, and now Peter Henderson is boss of the Bush Lima bean for the world, for all we know, and he ought to be. He deserves it for his energy and enterprise.

Later.—Since writing the above I have had my wife cook three samples of lima beans. The first was California lima beans, such as we sell at 10 cents a quart—dry beans, of course. The second was some King of the Garden limas that were saved last summer because they were too ripe to shell for the market-wagon. The third batch consisted of three 25-cent packages of Henderson's Bush lima beans. The whole family tasted them and their decision agrees with mine: The California lima beans were very good; King of the Garden limas, excellent—almost as good as green limas;

Henderson's Bush lima bean, very little different from ordinary white beans, with the exception that they have a slight lima taste, but not to be compared with the other two. Now, if, in a green state, they are no better than when dry, our good friend Landreth is not so very far out of the way in saying they are not a lima bean at all. But here comes a card from our good friend W. J. Green, of the Ohio Experiment Station:

Friend Root:—I see that you are disappointed in the size of Henderson's dwarf lima bean, and no doubt many others are also. Thorburn has what he calls Kumorie's dwarf lima, the seeds of which are quite large. I know nothing about it, however.

Agrie'l Exp't Sta., Columbus, O. W. J. GREEN.

We have written to Thorburn, and will report in our next.

THAT EARLY YELLOW PUMPKIN.

Mr. Root:—Inclosed find some pumpkin seeds of a yellow pumpkin that is earlier than anything else in the line of pumpkins I have ever seen. They are very sweet and nice, though they are quite small, growing to weigh only about 8 to 12 pounds.

Wabbaseka, Ark.

G. E. LYTLE.

We have got it already, friends—see? And here is another:

My wife sends you some pumpkin seeds called "Garden" pumpkin, as per Feb. 15th GLEANINGS. They are "boss," small, but grow quickly.

Mosiertown, Pa., Feb. 18, 1889. GEO. SPITLER.

There, friends, do you see how readily we can get almost anything we want by submitting it to the combined wisdom and experience of the readers of GLEANINGS? and here is still another friend with his offering:

A. I. Root:—We notice you want an early variety of pumpkins. We have an *extra-early* variety, but it is in a *tin can*. Now, our people here never think of *cooking* a pumpkin, as they think our canned pumpkin is an improvement on what they can *cook*; besides it is ready for immediate use. Will not this answer?

D. CUMMINS.

Conneaut, O., Feb. 22, 1889.

You see, friend Cummins is in the canning business, and his early pumpkin is certainly early enough for anybody, for it is always ready for use, as we can testify from personal experience, winter and summer; and a whole can full, can and all, can be sold at retail for only 10 cts. If you want a single can for sample, when you are ordering goods of us just mention it and we will put one in at the above prices. If you want them by the case of two dozen each, I presume friend Cummins will be glad to fill your orders.

FRIEND MARCH'S CABBAGE SEED—ANOTHER REPORT.

The trial packet of March's seed we planted last season gave the best of satisfaction. It was fully as early as Etampes, and a better header. (Wife says the above is not strong enough; the Wakefield seed was sown two weeks later than Etampes, and produced the first heads fit for use.) S. P. YODER.

East Lewistown, O., Feb. 21, 1889.

I wish to add to the above, that we have for many years tested almost every new

cabbage that has been recommended as being earlier than the Wakefield, to be found in our catalogues, and so far we have not found one of them that made a good solid head. Last season we planted two long rows of Johnson & Stokes' Wonderful; but our customers would not have them at any price when they could get Jersey Wakefield, as they were soft and loose; and I presume we lost a couple of dollars that would have been saved had we planted Jersey Wakefield. I am still going to keep on testing early cabbage, but I shall not put out over a dozen plants of any kind again until I find something not only earlier, but as hard and solid as the Wakefield.

TRAINING TOMATOES ON BEAN-POLES.

Set the plants three feet apart each way, and rather deep in the ground; in fact, as far down as the plant will admit, as the less plant above the surface at the start, the shorter and more bulky the vine will be, which is a very great advantage when the fruit is large and abundant. Very tall and leggy plants may be set out by making the hole trough-like, as you would to set out grapevines, and cover up the leggy part of the plant, and leave only a small part of the top above ground, as the stem of the plant will send out roots all the length that is under ground. The next move will be to drive down firmly by each plant a strong pole or stick, not less than six feet above ground—hoop-poles or sticks from lumber yards, such as are used for "sticking" plank will do well. When the plant is high enough to need tying to the stake it will need pruning, and, most likely, before. Every sucker must be taken off then, not one being allowed to remain, and the vine will, of course, consist of one single stalk, and must be kept so, to give large perfect fruit, and late into the fall. The tying to the stake must not be neglected after being begun, or the vine will fall over of its own weight, and likely break off. In pruning do not take off any of the leaves, as they are needed to shade the fruit and ground, and will grow just right to do it, and are, in fact, the life of the plant. Some years we are much troubled with cut-worms; and to go out some fine morning and find about every third plant lying over on its side, with no connection with mother Earth, is very exasperating. I would suggest, as a remedy, to wrap the stem of the plant loosely with a small piece of tissue paper, always allowing the grain of the paper to run up and down the plant instead of around it, so if you forget to remove it after the worms have disappeared, the growing of the plant, with the aid of a shower, will burst the paper. The fruit should be gathered before it gets too ripe, especially if it is to be shipped to market; and when it is gathered, put it in the shade instead of the sun, as is frequently done. Seed should be saved from the earliest and best specimens, dried on paper, and the variety and date put on the paper at the time. J. S. REESE.

Winchester, Ky., Feb. 4, 1889.

Friend R., I think very likely your plan would answer tiptop. I certainly think it would be a great gain indeed to be able to get our tomatoes away up above the ground, where they would not get spattered with muddy soil during heavy rains, and I do not know but that this one thing alone would pay for the expense of poles, and tying up.

OUR HOMES.

NOTES OF TRAVEL.

If thou turn away thy foot from the Sabbath, from doing thy pleasure on my holy day; and call the Sabbath a delight, the holy of the LORD, honorable; and shalt honor him, not doing thine own ways, nor finding thine own pleasure, nor speaking thine own words: Then shalt thou delight thyself in the LORD; and I will cause thee to ride upon the high places of the earth, and feed thee with the heritage of Jacob thy father: for the mouth of the LORD hath spoken it.—ISAIAH, 58:13, 14.

OUR next adventure was crossing the main range of the Rocky Mountains. This trip was by daylight; and as the road does not follow any stream of water it was much more romantic. In order to get up hill, the track runs around

and up, partly on one mountain and then on another, and oftentimes it runs at different heights on the same hill. The conductor pointed to one place during the ascent, where the track could be plainly seen in four different places—the uppermost, clear up in the clouds. As we approached the summit we were greatly annoyed in our view of the valley by the snow-sheds, and also by the snow-storms, until we got above the clouds. As we neared the summit still more, the coal smoke left by a train just before us became very unpleasant in the snow-sheds; but when we finally stopped on the extreme summit, at Marshall Pass, nearly two miles above sea-level, I began to wish very anxiously to have them start down again. The rarity of the atmosphere made me pant for breath, as if I had been climbing the mountain, when I just sat there in my seat and had not walked a step. The descent was much pleasanter, for the sun shone; and when we got down in the valley it was very fair summer weather, while on the mountains it snowed and blew, and was terribly cold.

After we reached the summit of the mountain, of course we did not need the two locomotives that had pulled us up, therefore one of them started on ahead in order to be at the foot of the mountain when the next train came along, going in an opposite direction. This solitary locomotive, as it wound its way through the rocky cliffs, and threaded its way down below, was a most interesting sight to me, for it indicated more plainly the curves in and out. I can not tell it. My gift of language is not equal to the occasion: but I can come pretty near it by quoting an extract from the same book I have quoted from before—"The the Continent." You will notice the author was going in an opposite direction from myself.

To attain this height, the road has to twist and wriggle in the most confusing way, going three or four miles, sometimes, to make fifty rods; but all the time it gains ground upward, over some startling bridges, along the crest of huge fillings, through miniature canyons blasted out of rock or shoveled through gravel, and always up slopes whose steepness it needs no practiced eye to appreciate. To say that the road crosses a pass in the Rocky Mountains 10,820 feet in height is enough to astonish the conservative engineers who have never seen this audacious line; but you can magnify their amazement when you tell them that some of the grades are 220 feet to the mile.

We have just passed through Grand Canyon, on the Arkansas River. It is much like Black Canyon, only the cliffs are still higher. Some of them that hang right over the cars as they thunder along, I do believe are fully three-fourths of a mile to the top. Many of these great leaning cliffs are ap-



THE ROYAL GORGE.

Crest of that the direction

parently of rocks so loose and rotten that a little jar might set them tumbling. Many of them greatly resemble a certain kind of rotten wood, both in appearance and color.

There is one special point in Grand Canyon where the rocks rise higher, and the fissure where the river and the railroad run is still narrower, that I wish to mention. It is what is called the Royal Gorge, and the train stops here for a few moments to allow the passengers to get out and look around. The Denver & Rio Grande Railroad Co. have kindly loaned me a picture of it (see preceding page).

At this point we seemed to be so far in the depths of the earth that one is tempted to think we are soon to be at the end of the road. In fact, as we look out in advance of the train, and the short curves make it possible to see not only the locomotive for the greater part of the way, but the train itself, we are tempted to think we have run into a place where there is no outlet. Very likely, however, you have learned to have faith in the locomotive, and to feel safe wherever it plunges ahead.

Oh, yes! here is an outlet; but it is so narrow you begin to wonder how both the river and the railroad can find room. Well, this is exactly the problem that confronted the engineers when they laid out the road. There is not room for both; for when the river rises it fills the whole opening between the cliffs. Necessity here proves to be the mother of invention, and the track is placed on a sort of bridge, one side of the bridge being let into the rocky cliff—the other side, or, perhaps, more properly speaking, the ends of the railroad ties, resting on a timber that is suspended under their ends, running parallel with the iron rails. The river rushes along right under this timber—in fact, it refuses to be contracted even one inch. It must have *all* the space between the rocky barriers on either side. How, then, shall that timber that holds the ties over the water be supported? The picture will show you how they did it. Braces of great timbers, something like the letter A, span the river. One end is set in the rocks of the cliff at one side, and the other end in the other; and from where the timbers meet, great iron rods reach down and hold the track securely, with one edge over the boiling and seething torrent. I got off the train and stood on the track near those timber braces. I tipped my head back and looked up, up, up, up, until the rocks seemed on a level with the great birds as they swung lazily in the sky. I stared with open mouth until my neck ached, and then looked on the opposite side. There it was just the same. Look at some object just three-fourths of a mile distant from you, and then picture to yourself a rocky precipice straight up that distance. When tired again, I glanced at my twelve fellow-passengers, and then I looked at the railway train and the locomotive. The author of "The Crest of the Continent" says, after viewing the above he looked at his fellow-men, at the locomotive, and then concluded: "Of all natural curiosities, *man* is the most curious—yes, more marvelous than even the Grand Canyon itself." Before dismissing Grand Canyon I want to make another quotation from the above writer.

This is the Royal Gorge! But how faintly I tell it—how inexpressible are the wonders of plutonic

force it commemorates! how magnificent the pose and self-sustained majesty of its walls! how stupendous the height as we look up, the depth if we were to gaze timidly down! how splendid the massive shadows at the base of the interlocking headlands—the glint of sunlight on the upper rim and high polish of the crowning points! One must catch it all as an impression on the retina of his mind's eye,—must memorize it instantly and ponder it afterward. It is ineffable, but the thought of it remains through years and years a legacy of vivid recollection and delight, and you never cease to be proud that you have seen it.

At Pueblo, Colorado, I am again surprised to find a summer temperature, and to be told they have only five or six weeks of winter.

It is Saturday night, and the question confronts me, "What about Sunday?" My fellow-travelers have announced their determination of traveling right along, so as to get home. In my pocket is a letter from my wife, telling me that they expected me more than a week ago; also that she could not take Huber to church any more; for when he looks over to where papa usually sits, at the right of the empty seat, he bursts out sobbing, and has to be taken home. Dear little Huber! what would I give to get hold of him to-night? I am afraid I am a little homesick. The temptation is strong to rush right on home. But, how shall I feel all the long day, encouraging, by my presence, Sunday travel, or, rather, *no Sunday* at all? It is exactly like buying the memorandum-book last Sunday. By my act I should be saying to the great busy world, "You are all right as *you are*." Four Sundays have passed since I left home, and they have been glorious ones. Shall I lose courage on the fifth? God help me to do right. To be ready to keep the Sabbath "decently and in order," I should stop certainly by 6 o'clock, for I want to *get ready* for Sunday, and make a short call on the pastor of the church where I expect to attend. I believe my deaf friend was about right when he said he thought we ought to even *black our shoes* Saturday night in order to keep the Sabbath in the best sense of the word. Once more I am about to go among entire strangers. Satan says, "Nobody will know you or care for you here surely," but, with a prayer that the spirit of the Master may go with me and before me, I make my decision. I hardly need tell you that my heart felt lighter as soon as I had decided on this step.

During the past week I have already figured up about where I should be when Saturday night came, and I have selected a little town at the base of Pike's Peak (much talked of by the gold-hunters in 1859), called Manitou Springs, as my resting-place during the Sabbath. I selected this spot on account of certain attractions in the way of natural scenery beside the great mountain; and the conductor had already told me that we should be there about six o'clock. It was now about four o'clock, but no mountains were in sight, except a clump of hills off toward the northwest. The tallest of these, I had decided in my own mind, was probably Pike's Peak. This little group of mountains was probably forty or fifty miles away; but at the rapid rate at which we are going we should probably reach them in

two hours. Darkness came upon us, and I could see no more. Shall I tell you how it turned out? Well, I asked a young man if he could direct me to a quiet temperance hotel, where the charges were moderate. I also made some inquiries about Pike's Peak; for by the light of the stars I could see that the town was surrounded by mountains, except on one side, where the train ran in. A hotel was pointed out to me, and my informant also asked me if I could see the snow-capped mountain just back of the town. I told him I did.

"Well," said he, "that mountain, with its top covered with snow, is Pike's Peak."

"What! that great hill up close to the buildings yonder?"

"Yes, sir, that great hill up close to the buildings. But you may be surprised, however, to learn that it is not so *very* close, after all, for it is fully *thirteen* miles away."

Could it be possible? I gazed at the hills so long, wondering how it was possible that the mountain could be thirteen miles away, when it seemed almost overhanging the town, that I suppose I forgot which way he pointed when he told me to go to the hotel where I saw a light. Of course, I made a blunder, and got the wrong place; but, dear friends, did it never occur to you that, when one is seeking the guidance of his heavenly Father, even his blunders seem to be looked after? The place where I did go was a little hotel on the hillside, called Mountain View. A tidy, trim little woman, with a pleasant Scotch accent, informed me that their rates were only \$1.25 a day. She told me, further, that there was a Congregational church in the place, and that it was close beside us; yes, the pastor lived near by too; in fact, he was almost their next-door neighbor. I told her that I had a severe headache, and did not care for supper, any more than a cup of tea and some toast; but she took so much pains to make every thing pleasant, and to look after my comforts and wants, that I had forgotten my homesickness a good deal, even before I went over to call on the pastor of the little stone church. When I told them the circumstances, he and his good wife, and even the children too, treated me with as much consideration as if I were a member of their family. I felt too tired, however, to talk much. I told them I came principally to get some lesson-helps, to prepare myself for the Sunday-school on the morrow. The pastor's wife then said she had been wondering how she should find somebody to take her place as teacher of the Sabbath-school on the following day, as she was prevented from attending to it by other duties. I promised her to take charge of the class as well as I could, if I were not too hoarse to speak. They then both advised that I go back to the hotel and go to bed; and the good pastor added that, if I were not better in the morning, they would make it their business to take care of me until I was better. As I lay down to rest, I really feared that I was going to be sick; but I felt happy to think of the friendly hands I had fallen into.

As the morning sun poured into my pret-

ty little bedroom, my first thought was a feeling of thankfulness that I felt so well. Right in sight was that old white mountain, Pike's Peak, of the night before. An excellent breakfast soon made me feel quite well. The three or four young men who were boarders there not only enlightened me in regard to Pike's Peak, but also Grand Cavern on the mountain-side that, in some respects, rivaled Mammoth Cave; Rainbow Falls, the Cave of the Winds, the wonderful effervescing springs, and last, but not least, that strange product of nature, the Garden of the Gods, as it is called. One of them said that he was so busy during the week, he had not had time to see these celebrated places; but he thought he would go over during that bright sunshiny day, and he indirectly intimated that he would be glad to have me accompany him. I told the boys that I was very much interested in these strange things, but I did not believe in visiting such places very much on Sunday, but that on *Monday* I should be very glad of any instruction. As we went back to the sitting-room, one of my new friends asked me to look out of the window at Pike's Peak. I did so.

"Well, do you see the snow rolling in great drifts over the peak, and whirling in the wind?"

As soon as he mentioned it, I saw it distinctly, and uttered an exclamation of surprise—especially so as, down in the valley where we were, it was a comparatively warm spring morning. He further informed me that snow is blowing and whirling almost every day in the year away up on the summit of Pike's Peak.

While the boys went their several ways I sat down in the little sitting-room to study, and to prepare myself to teach my class. I not only read all the lesson-helps, but I took the Bible and read the whole history of Samson, from beginning to end. When the pretty little church built of mountain granite was opened, I was one of the first to enter. Did you ever know, dear reader, that a peculiar blessing seems to rest on those who gather *first* in God's holy house? I confess now that it has not been my custom by any means to be among the *first* at home; but during my vacation of four or five weeks, I have, somehow or other, been in a hurry to get to church or Sunday-school. On this Sabbath morning I felt particularly happy. Bright little faces soon followed me, and gathered into the Sunday-school. In Manitou they have Sunday-school before preaching. Pretty soon a little one, just about Huber's size, and remarkably like him, came up the aisle and made straight for me, taking hold of my arm, as if it always knew me. The act almost startled me; but it awoke in my heart a fervent "God bless the child!" and while the superintendent was speaking as the school opened, this same little one turned back to some boys and communicated the astounding piece of intelligence that she (I found out after that it was a little girl) had just had her *hair cut*. This piece of information was so extremely funny that she followed it up by giggling out loud. The superintendent

very gravely took her by the hand and led her up by his side, and then made her sit down by the steps of the pulpit. It seemed to me a little severe, and I was afraid she was going to cry; but she only hung down her head; and pretty soon, when his attention was taken up by the work of the school she edged off slightly, so that, when he looked for her again, she was missing. Now, this was a mere trifle, dear reader; but somehow or other it brought vividly before my mind the task that the Sunday-school teachers and superintendents have upon their shoulders—the leading of these precious little souls to Christ Jesus. And then burst upon me, as never before, the words, “Suffer the little children to come unto me, and forbid them not.”

After the school was over, the little blue-eyed chick came up to me again, and the superintendent came at the same time. It was *his* little girl. It seemed to me as if I loved them both—father and child—as though they had been near relatives all my life. I told her about my little Huber at home; then I asked her some questions.

“Will you tell me your name, my little friend?”

The only reply I got, however, was, “I had my hair cut yesterday;” and then she indulged in her childish fun again.

“But won’t you tell me how old you are?”

“Next May,” was all the reply I could get. Then her father asked me how I got on with my class. I looked up into his kindly face, but I did not dare to tell him the whole truth. Had I done so I should have said it was one of the happiest half-hours of my life. I decided to say only, that, for my part, I had enjoyed it exceedingly. One of the members of the class—a bright, intelligent lady, who had strengthened me by her kind and wise words, added:

“And I am glad to say, Mr. Superintendent, that the class have enjoyed it also—at least, I have enjoyed it very much.”

What a nice lot of men and women were in that class! Was it possible that Manitou contained more good people than all the rest of the world, or was it only the peace of Christ Jesus, and that his great love had found a lodging-place in my heart that Sunday morning, that had made me feel like loving every thing and everybody?

There was another little circumstance that made that morning service so bright and glorious. Right back of the pulpit, in beautiful letters on the wall, were the following words:

“Let the words of my mouth, and the meditations of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer.”

When those words first burst on my view, it seemed that it was the most grand and glorious text that the Bible ever gave to poor humanity; and the oftener I read the words, the brighter they shone forth, as a beautiful prayer for weak and sinful people like myself. I thought of my wavering decision of the night before; but I can not tell you how I thanked God that I had *not* chosen to travel on Sunday. During my stay I had had several arguments, and some pretentious talks, with avowed infidels and

skeptics; and the thought came into my mind, Is there an individual in the whole wide world who can honestly raise the slightest objection, or offer a single breath of criticism, on that wonderful prayer?

I can’t tell you the *wide* difference between having the prospect before *me* of Sunday travel, contrasted with a day among Christian worshipers. Do you say it is an easy matter to make *me* happy? My friend, it is an easy matter to make *everybody* happy, when they are in the path of duty. A thrill of peace and joy poured down into my soul so like that of my first experience, when I dropped the whole world for Christ Jesus, that it was hard for me to keep the tears back. What a bright and pretty gathering of boys and girls, and what a class full of intelligent and refined gentlemen and ladies were in my class. My heart went out in love to every one of them. I read the text again and again, dwelling longingly on the different shades of meaning. Did David ever long for the presence of God in his heart as *I* have longed, and did he ever have cause to pray as *I* have prayed, that his inmost thoughts might be acceptable to God? How exactly it fits with my temptation and triumph of yesterday! To-morrow I am going to visit, and describe to you some of the natural curiosities about here; but, dear friends, there is nothing in this whole universe to be compared with the riches—the *boundless* and *inexhaustible* riches of the simple words of the text I have quoted.

RECENT DEVELOPMENTS

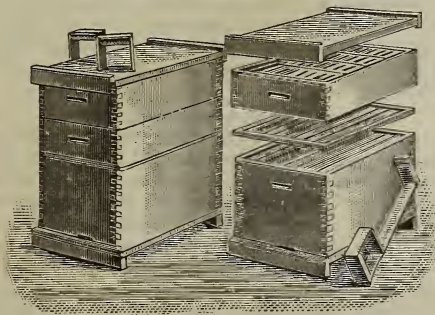
CONDUCTED BY ERNEST R. ROOT.

THE DOVETAILED HIVE.

THE tendency of the times is more and more toward simplicity. The most practical honey-producers—those who own colonies by the hundreds and not by the tens, incline toward (if they do not already use) cheap, substantial, and simple hives and fixtures. Indeed, the price of honey is such that they can not afford expensive and complicated arrangements. In the past few months our foreman (Mr. J. S. Warner), Mr. Calvert, and your humble servant, have been considering the question of a still simpler and still cheaper hive than the Simplicity, though not necessarily cheaper in quality. Dr. C. C. Miller’s advice and assistance have been freely sought through correspondence. After a good deal of arguing and discussion, and a careful study of the needs of the times, we have at last brought out what we shall call the Dovetailed hive, a cut of which we append below.

As the name indicates, its distinctive feature is the dovetailed corners. To do this work we have recently put in some expensive machinery. Almost any child can drive such a hive together. If each of the dovetailed ends be dipped into paint before driving them together, and then cross-nailed, you have a joint that, for strength, can hardly be surpassed. No iron gauge-frames nor any thing of the sort is necessary. The hive proper is simply an eight-frame hive

with square edges (that is, unbeveled), having a plain bottom-board cleated at each end; a plain cover, likewise cleated, with this difference, that the cleats have a longitudinal groove $\frac{1}{4}$ inch wide, and $\frac{1}{4}$ inch deep, to admit the ends of the cover-board, as shown in the cut. The front of the bottom-board is cut out so as to permit contracting the entrance in the same manner as is done with the Simplicity hive with the alighting-board. The brood-chamber may be used for an upper story for extracting if desired. Each body is of the width of an eight-frame hive, and deeper than a Simplicity frame by a bee-space, making a total depth of exactly $9\frac{1}{2}$ inches. The frame-rabbets are simply plain wood bearings (without tin rabbets), which bring the top-bar of the frame flush with the top edge of the hive. "Take care, there!" you will say; "you have made a mistake—there should be a bee-space above the frames in the hive." Let me explain. In order that the brood-chamber may be used interchangeably as a brood-chamber proper and as an extracting super, you will see, upon a moment's reflection, that the body should be deeper by a bee-space than the extracting-frame. If a bee-space is left on top, and a bee-space below, when one

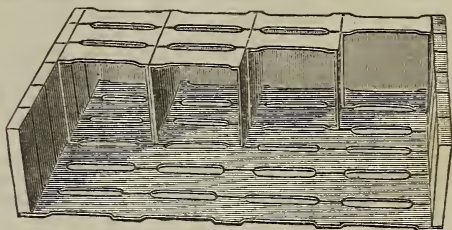


THE DOVETAILED HIVE.

body is put on another there will be a distance of $\frac{3}{8}$ inch, calling a bee-space $\frac{3}{8}$ of an inch. How, then, do we provide for a bee-space above the frames? Use a honey-board, to be sure, bee-spaced on both sides. Judging from reports that have come in, and the statements of our most extensive honey-producers, and from our own experience, we feel sure that the honey-board will save not only time but patience, and in the present state of our knowledge of apiculture it is in reality an indispensable fixture to the hive; therefore the honey-board of the Dovetailed hive is to have a bee-space $\frac{3}{8}$ inch above and below the slats or zinc, as the case may be.

We now come to the surplus apartments. In the present state of progress in hives and supers, you and I scarcely know what kind of a surplus arrangement we may be using or advocating, say two years hence. Dr. Miller has made a similar statement in print, I think, in his "Year Among the Bees." In view of this fact, were it not well, since we are making a new hive, to construct a super for it that can, with no very great difficulty, be adapted either to a

T super proper or to a wide-frame arrangement? If this year we adopt the T super, possibly next year we shall find it to our advantage and to our interest to change to a wide-frame arrangement, if we can do so at no very great expense. Well, a T super should be $4\frac{1}{2}$ inches deep—that is, $\frac{3}{8}$ inch deeper than the $4\frac{1}{2}$ section, so as to leave, after proper shrinkage, $\frac{3}{8}$ bee-space above the sections. With this fact in view, how shall we adapt it to a wide-frame arrangement? We did it this way. The engraving below shows the section-holders, as we shall call them, to distinguish them from the wide frames proper.



SECTION-HOLDERS FOR THE DOVETAILED SUPER.

You will notice there are no top-bars, the reason of which will be made obvious presently. The end-bars are $\frac{1}{2}$ inch thick, and exactly $4\frac{1}{2}$ inches long, and $1\frac{1}{8}$ inches wide. The bottom-bars have openings to correspond with the openings in $1\frac{1}{8}$ sections, and are exactly $\frac{3}{8}$ inch thick. Our supershell, you will remember, is $4\frac{1}{2}$ inches deep. Into this we set these section-holders, the ends of which are supported by a strip of tin. The sections are $4\frac{1}{2}$ inches deep; adding to this $\frac{3}{8}$ for the bottom-bar of the section-holder we have $4\frac{7}{8}$. This figure, subtracted from $4\frac{1}{2}$ (the total depth of the super) will leave $\frac{3}{8}$ bee-space above the sections. This bee-space, I grant, is rather scant; but there are those who claim that if there is just barely enough room for bees to crawl through, they will not propolize. At any rate, we deemed it better to leave the top of the sections unprotected by a top-bar than to protect them. One of my greatest objections to the wide frame proper is that propolis is deposited between the top-bar of the wide frame and the top of the sections, for the reason that the sections sag away from the top-bar; but the amount of propolis is reduced to a minimum between the bottom of the sections and the bottom-bar, for the reason that gravity draws the section close in contact with the support below. Now, then, if we should prefer to use T supers, we shall have to close the space up at the two ends, with a board $\frac{1}{2}$ inch thick—the space occupied by the end-bars of the section-holders. The T tins may then be put in, and the sections be placed in the super, and an ordinary T super is the result. You may urge, why not make the T super shorter? For a reason I will not attempt to explain here, I will say this can not be done very easily, so that the adoption of the $\frac{1}{2}$ -inch board seems to be the only solution to us thus far.

WIDE FRAMES VERSUS SECTION-HOLDERS.

The facility with which wide frames or similar arrangements can be shifted from outside to center, and vice versa, is a strong argument in their favor. While our section-holders possess this feature, unlike wide frames (in the absence of the top-bar) they can be filled and emptied easily. While I do not wish to do any thing to discourage any one from taking hold of the justly popular T super, I wish simply to say that our section holders are better adapted to the Dovetailed hive.

Our dovetailed supers can be used for the half-depth bodies, if desired; and one of them placed upon the other will take extracting frames when circumstances require it—for instance, an unexpected rush of honey when the bee-keeper is unprepared with extra bodies. Each of these super-shells has the ends rabbeted for the purpose; and right here I want to say that this rabbet affords the nicest kinds of finger room to grasp the section-holders. The fingers can be let down into the rabbet, and grasp the upper edge of any individual holder, so that you will see this rabbet may be made to serve a double purpose.

IS THIS HIVE NEW OR OLD?

This hive is not new. In appearance it is similar to the old-style eight-frame Heddon-Langstroth. As we paid Mr. Heddon, some three or four years ago, \$100 for using any or all the features of this particular hive that we thought proper (none of which we have used hitherto until now), we are sure that he will not accuse us of copying without credit, or without a just recompense. The feature of dovetailing is, of course, not new, but it has quite recently been applied on a large scale to hives, and that by some of our good friends in Australia, and by our friend Mr. Danzenbaker, of Claymont, Del.

I want to say right here, that, although Dr. Miller has helped us not a little by way of suggestions, it is not just exactly his ideal hive. With the T super, pure and simple, one that would not require taking up the space with loose boards, and with a reversible bottom-board, it would be just his ideal, exactly; but he agrees that, for the masses, the hive as we propose making it is about right, although his individual needs would require one or two slight changes.

That this hive is considerably cheaper than the Simplicity or any of its combinations, you will see by comparing prices found in our Special Notices. In most cases it will be found from 25 to 33 per cent cheaper.

PRICE LISTS RECEIVED.

S. L. Watkins, Placerville, Cal., sends us a one-page list of honey and Carniolan bees.

J. M. Hambargh, Spring, Ill., sends us a nice 12-page list of apiarian supplies.

The W. T. Falconer Mfg. Co., Jamestown, N. Y., send us quite a comprehensive catalogue of apiarian supplies.

Pillmore Decker, New Florence, Pa., sends us his list of bees, poultry, seeds, and pigs.

H. G. Frame, North Manchester, Ind., mails us a 4-page price list of queens and bees.

Hamer & LaRue, Lewistown, Ohio, have just had printed at this office a 16-page list of bees, queens, etc.

We are now printing Oliver Foster's annual list of supplies. It will be ready for delivery by the time this journal is read. The address is Mt. Vernon, Ia.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

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MEDINA, MAR. 1, 1889.

Let the words of my mouth, and the meditation of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer.—PSALM 19:14.

GOOD SUBJECTS TO WRITE ABOUT.

We are glad to notice the evident disposition of our correspondents to review and reconsider the contents of "Our Question-Box" after they have been once submitted. The questions are selected and worded with great care, and are good subjects to write about.

HOW TO RAISE SWEET-POTATO PLANTS.

In answer to my request in the last issue, we have received up to this date 30 excellent articles on the subject, and I do not know but I shall put them all together in a little pamphlet. We will try to have it before our readers in some shape before time to commence operations. Please do not send any more.

GREAT IS TRUTH, AND WILL PREVAIL.

A FEW months ago I was saddened and somewhat discouraged because there seemed to be an attempt on the part of quite a good many men to revive patents on bee-hives; and even as good a man as our jovial friend D. A. Jones thought best to offer rights for sale. I am, however, much refreshed to notice the following in the *Canadian Bee Journal* of Jan. 23:

I object to patents on bee-hives, and am pleased to say that the simplest and most practical hives of the present day are unpatented, so that any one is at liberty to make for himself almost any hive which takes his fancy and suits his ideas of practicability.

OMITTING TO GIVE FULL ADDRESSES WHEN RENUEWING.

RENEWALS and new names are coming in at a rapid rate. This, of course, is gratifying; but some of our good friends, on renewing, simply sign their names, without giving either postoffice or State. Please bear in mind that our subscription-list is arranged alphabetically according to *postoffices*; and unless we have your full name and address we can not very well renew your name without going to a great amount of trouble, and even then we sometimes have to give it up as a bad job. If we happen to have previous correspondence, or if the name happen to be on our ledgers, we can then find out what the postoffice is. Our subscription clerk informs us that, at the rate renewals are now coming in, there is about one a day which does not not contain the proper address. A day or two ago we received a letter from a man, asking us to renew his subscription. He not only failed to give his postoffice and State, but he failed to give his initials. The postmark on the envelope showed that his State was Illinois. Knowing this, our clerk looked at our long list of Illinois subscribers,

and succeeded in finding the name. As a general rule we can not afford to do this, and consequently have to wait until the careless individual complains. A very little care on your part saves us a large amount of trouble.

FALSE STATEMENT IN REGARD TO THE ADULTERATION OF HONEY. SEE PAGE 163.

THE clipping, entitled "Bogus Honey," has been sent us again. It was taken out of the *Albia* (Ia.) *Union*, and they credit it to the *Oskaloosa Herald*. If any of our readers live near these papers, or take them, will they help us by writing to the editors and inclose this number marked? We will furnish them just as many copies as they need.

THE PREMIUM BUSH LIMA BEAN FOR SUBSCRIBING AHEAD.

ANY one who pays up his subscription to the present date, or ahead of the present date, and then sends us another dollar for another year ahead, can have a package of Henderson's new Bush lima beans; and any one who takes *Gleanings*, no matter how or under what circumstances, can have a package of the *Ignotum* tomato seed on application. We give the above in answer to many inquiries.

THE AMERICAN BEE JOURNAL AND ITS BIOGRAPHY OF A. I. ROOT.

In the *American Bee Journal* for Feb. 23, page 117, appears a fine Ives engraving of the editor of *GLEANINGS*, together with a biographical sketch. We extend our hearty thanks to Bro. Newman, not only for the excellent engraving, but for the very, very kind words said of us at the end of the sketch, by himself. In speaking of our relations in the past, he says: "Mistakes have been made; but with *both parties anxious only to be right*, they have been readily adjusted." The italics are ours. We most heartily indorse these sentiments.

HOW TO MAKE HENS LAY.

FOR two winters past we have been starting our Brahmas to laying by feeding them cooked beans—the beans being the culls from those picked over for our market-wagon. There is no doubt about it. They will start them to laying within 48 hours. Well, a few days ago we had a surplus of hulled corn (boiled corn), and quite a lot of it was given to the Brahmas. We had been getting three eggs a day; but the day after they had the boiled corn were ceived seven eggs. Now, then, shall we say that cooked corn is as good as cooked beans, or even better? I think not. Shall we say, then, that cooked grain starts them to laying? Not necessarily. I think it is just this: A change of diet at just the right time. A good feed of raw cabbage, when they have not had any for some time, will at once set several hens to laying that had not been laying. Lettuce produces the same result; and for hot weather I think it is even better than cabbage.

APICULTURE IN SPAIN.

WITH the beginning of the year, friend Andreu, editor of the *Revista Apicola*, published in Mahon, a city in the Balearic Islands, off the east coast of Spain, has enlarged his neat little journal from 8 pages to 16, and prints it on nice calendered paper, and also puts on a cover. Friend Andreu is fully abreast with the spirit of the age, which seems in strange contrast with the conservative spirit of the Spaniards in general. Being free from such winters as we have here, although in the same latitude,

the question of wintering seems to cut no figure with them. The kindly editor not only writes Spanish, of course, but his letters in English show him to be even more familiar with our language than the majority of those who have always used it—see p. 516, 1888. The advent of his paper is always a source of pleasure, for it indicates the rapid spread of modern ideas of apiculture in that land of romance and song. By the way, it was here that, in 1796,

Old Ironsides at anchor lay,

In the harbor of Mahon:

A dead calm rested on the bay,

And the winds to sleep had gone.

When little Jack, the captain's son,

With gallant hardihood,

Climbed shroud and spar,

And then upon the main-truck rose and stood.

SHALL WE FOLLOW OUR SPIRITUAL LEADERS?

SEVERAL of the good friends of *GLEANINGS* have entered a mild protest to the position I take on page 101, Feb. 1. Now, there is not room, even if it were advisable, to discuss doctrinal points in theology in the pages of *GLEANINGS*. Such matters had much better be left, in my opinion, to the pastors of our respective churches, who have had a theological training and a theological education. Shall a member of a church confer with his pastor and get his advice on these points, or shall he go off on his own hook? It seems to me, dear friends, the man who leaves his church and pastor because they can not agree or think alike on all points is much like the man who leaves his wife because of little differences. If he gets a divorce and takes another wife, he has ten times more trouble than with his first one. If you think I am mistaken in the matter, see how such things turn out in your own neighborhood. By their fruits ye shall know them. First and foremost, and above all things, read your Bible carefully and prayerfully, then consult your pastor.

WANTED.

THE principal thing that seems to be wanted just now is some sort of a scheme to induce those who have much money and few wants to hand over some of the surplus to the rest of us who have many wants and "few" money. Now, I am not getting toward anarchy, for you know that is not like me. I am simply looking for plans to bring it about in a legitimate way. Raising lettuce and strawberries in greenhouses for rich folks to adorn their tables in the winter time is one of the ways. Gilt-edged butter comes in the same line. My brother-in-law took me to a restaurant in Cincinnati that is celebrated for the excellence of its steaks. The waiter gave each of us a great slice that might make a small man feel bashful until he had taken a taste of it. Why, my friends, it was away ahead of roast turkey or any thing in that line. This restaurant always keeps just that kind, and they have a host of customers among people who are not only willing but glad to pay an extra price to be sure of getting this extra corn-fed beef every time. At Bagg's Hotel, in Utica, N. Y., where each meal costs a dollar, every thing was gilt-edged. If you called for a baked potato it was a great whopper, roasted in the ashes, as in the good old times, and the quality of the potato was so choice that all you had to do was to break it in two, rap on the charred outside, and the smoking contents rattled out dry and fluffy. Twice in my life have I tasted such baked potatoes. The first time was more than forty years

ago, when grandmother used to bake Lady Fingers in the ashes on the hearth of the wide old fireplace. Well, the experiment stations say the sole trouble with the Lady Finger nowadays is, that it is an extremely poor yielder. And now you can see what it is that I want. I want a potato as good as the old-fashioned Lady Finger, that *yields well*. Can any of the brethren furnish it? If so, send me one or two by mail, and I will have Mrs. Root roast them in the ashes; and if they even come pretty near the Lady Finger we will give you a free advertisement of your seed. Surely somebody ought to have this potato. A catalogue is just at hand, offering 700 different varieties of potatoes. It would be a little sad if none of the 700 could come up to the Lady Finger as a baker.

We have at this date 8477 subscribers.

SPECIAL NOTICES.

We now have Dadant's Langstroth Revised, and can send them out by return mail. Price \$2.00. By freight or express, 15 cts. less.

WANTED—SPIDER-PLANT SEED.

Mail us a sample, tell us how much you have, and we will write you what we can pay for it. We want seed of last season's raising.

ALSKE CLOVER.

We have a nice stock of alske clover seed, to fill orders on short notice. I believe it is the nicest seed we ever had for sale. The secret is, we have had a good many samples to choose from, and selected only the best. Our prices: \$2.25 per peck; \$4.40 per half-bushel; \$8.50 per bushel. In lots of 5 bushels, \$8.00 per bushel.

THE IGNOTUM TOMATO SEED.

Since my last mention of it, we have given away about 1000 more packages, making 2000 in all. And now the friends begin again to say, "Send me a package if it is not all gone." Why, bless your hearts, there are at least 3000 more packages to be given to subscribers of GLEANINGS. Just say, "Send us a package of that tomato seed," and do not put in any thing about its being gone.

FOR SALE, ENGINE LATHE AT ONE-HALF PRICE.

It swings 15 inches over bed; takes 40 inches between centers; has both foot-power and counter-shaft; is back-gear, screw-feed, and screw-cutting; cost \$150.00. Will clean up, paint, and pack for shipment, for \$75.00. It is now in use in our machine-room, and we would not think of selling it except that our work now demands a heavier and larger tool. This is undoubtedly a good opportunity for some one to secure a valuable tool cheap.

THE CHARTIER RADISH.

A great trade has sprung up on this favorite radish, and we have bought such large quantities of the seed of the originator, Wm. C. Beckert, that we can give the following low prices: 5 cts. per oz.; 10 cts. per ¼ lb.; 35 cts. per lb. If wanted by mail, add at the rate of 3 cts. per ¼ lb., or 9 cts. per lb., for postage and packing. See the latest issue of our seed catalogue, giving reductions on many kinds of staple seeds, issued Feb. 15—mailed free on application.

"KING OF THE GARDEN" LIMA BEANS.

Since my test (mentioned in another column) of dry lima beans, I have concluded that we did not quite appreciate the King of the Garden last summer. Their immense size makes it much easier to pick and shell a quart of them than the common limas, and they are certainly fully equal for table use. We planted quite a large patch of them last season, and we propose this season to plant a larger patch. Price 5 cts. a package; 15 cts. per half-pint; 50 cts. per quart; \$2.75 per peck, or \$10.00 per bushel.

THE CARPENTER'S STEEL SQUARE, AND ITS USES.

After long months of waiting and putting off our customers having orders in for the above book, we finally gave up all hopes of getting them again from the publisher, and accordingly sent back the money we had received, and crossed them out of our book-list. No sooner had this been done than we received word from the publisher that the books were out at last. We sent him an order by first mail, and now have 200 in stock, ready to send by return mail for 17 cts. each, postpaid, or 15 with other goods by express or freight.

JAPANESE BUCKWHEAT.

We notice in most of the seed catalogues so far, that seedsmen are asking \$3.00 per bushel, retail, for new Japanese buckwheat. No doubt this extra price is to help pay for fancy lithograph covers and chromo pictures that come with the catalogues; but please remember that our price is only \$2.00 per bushel; \$1.25 per ½ bushel; 75 cts. per peck. In lots of five bushels or more, \$1.75 per bushel. We have a very large stock of very choice seed. We have made arrangements with a party in Wisconsin, whereby we can fill orders from that point, of two bushels or more, to customers in the West, to save freight.

PRICE LIST OF DOVETAILED HIVES.

We append here a list of prices on the Dovetailed hive, illustrated and described elsewhere in this issue. Please notice that we give prices in different quantities per hive, under the quantity named at the top of the column.

Description.	Price each.		In lots of—	
	1	5	10	20
(Please order by number).				
No. 1. Eight-frame Dovetailed hive, shown to the right, over, with one bottom, body, one super, slatted honey-board, 8 all-wood frames and cover, 1½ story, for comb honey, complete, put up and painted	1 50	1 45	1 40	1 35
No. 1. Eight-fr. Dovetailed hive in flat, with sections, starters, and tin sep's. .	1 20	1 00	90	85
No. 1. Eight-fr. Dovetailed hive, in flat, with frames and section-holders, but no sections, starters, nor separators	90	75	70	65
No. 2. Eight-frame Dovetailed hive, shown to the left, over, is furnished just like No. 1, with one more super added, making a two-story hive complete, put up painted. .	2 00	1 95	1 90	1 85
No. 2. Eight-fr. Dovetailed hive in flat, with sect's, starters, and separa's. .	1 50	1 30	1 25	1 20
No. 2. Eight-frame, Dovetailed, in flat, with frames and section-holders, but no starters, separators, nor sections	1 10	90	85	80
No. 3. Same as No. 1, except that it has T tins in the supers, instead of section-holders. Same price.				
No. 4. Same as No. 2, with T tins instead of section-holders. Same price.				
We will make the Dovetailed hive 10-frame instead of 8-frame, in any of above numbers, as follows:				
Nailed and painted, complete, 20 cts. each extra.				
In flat, complete, 15 cts. each extra.				
In flat, without sections, starters, or separators, 10 cts. each extra.				

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS is so valuable and interesting I should not want to do without it.
New Philadelphia, O. DR. G. L. TINKER.

Really, Bro. Root, and no "taffy." GLEANINGS does grow better and better. Thank you for the biographies. They are good. H. E. MILLER.
N. Searsmont, Me., Jan. 9, 1889.

The type-writer came all right. We are very much pleased with it. It is very nice, and a better machine than we supposed it to be.
Wells, Minn., Dec. 31, 1888. J. P. WEST.

We were really delighted with the account of the travels in California. Your way of describing it, and mentioning the little things, makes a person seem to be traveling with you. We think Ernest did well upon GLEANINGS while you were gone—not only well, but splendid. He gave us an excellent GLEANINGS, especially the last one.
Roseville, Ill., Dec. 15, 1888. MRS. L. C. AXTELL.

KIND WORDS FROM SWEDEN.

After describing our A B C book, our good friend Hj. Stahlhammer, editor of the *Svensk Bitidning* (*Swedish Bee-Journal*), deposes as follows in regard to the author of the book:

Mr. Root's name alone is a guarantee for the worth of this book—a man of whom it may be said, "In him falsehood finds no place," and who in faith and business is a Christian in the best sense of the word. We can, therefore, recommend this book in the highest terms, as it is fully up to the times.

[If the above is "too good," we hope it will be excused by the fact that our education in the Swedish language was somewhat neglected when we went to school, and hence a "new version" might modify the meaning somewhat. But we strongly suspect that the "sum and substance" is about all right.]

A B C OF BEE CULTURE.

"What's that?" remarked the editor as a package was handed him. As no one replied, he thought it might be well to investigate. Was it a bomb? Never! It was a copy of the "A B C of Bee Culture," that pioneer book on the art of progressive bee-keeping, which gives its readers the bee-fever so badly that sometimes they never get over it—you see it's worse than a bomb (?) for the bee-keeper. The book has now reached its 37th thousand; been recently revised; many new engravings added, and, to make it what friend Root used to call a "whopper," the biographies of 21 "noted bee-keepers" add much to its value. The great beauty of this work, it seems to us, lies in the simplicity and clearness with which all the details and manipulations are given; making it pre-eminently a book for the beginner. It is published by A. I. Root, Medina, O. Price \$1.25.—*Bee-Hive*, Jan. 1.

WHAT A. E. MANUM THINKS OF GLEANINGS.

I can not let the year 1888 pass away without returning to you the warmest thanks of one who is a steady reader of *GLEANINGS*, for the good work you have accomplished in the past few years. It has been an era of great success to you, and, as I firmly believe, a great benefit to the many bee-keepers of this country. Although the year 1888 has been somewhat disastrous to the bee-keepers of America, your good and timely counsel has given courage and hope that the coming year will bring prosperity and gladness to your many readers. You are entitled to the thanks of the great body of bee-keepers, and the increase of your circulation shows that many of them are not unmindful of their obligations. You have given us a bright, clean, able, educational magazine at one dollar a year, which shows hard work and good business management, and I am pleased to notice the success which is so justly your due.

A. E. MANUM.

Bristol, Vt., Dec. 27, 1888.

WHAT TO DO, AND HOW TO BE HAPPY, ETC.;
WHAT A READER OF THE BOOK SAYS OF IT.

On receiving your book, "What to Do," I thought I would write just a formal note, acknowledging the receipt of the same. I began to read the book, became interested, and put off writing, until now I feel under obligations to give you my sincere thanks, for the pleasure and instruction contained therein. To simply say, "I like the work," seems cold and expressionless; therefore I will say it gave me real pleasure to read it, and I believe it will be greatly to my benefit to obey its instructions.

A great many books are written, giving instructions in garden and farm work, which are so filled with technical terms it is hard to find out what they mean. The language in "What to Do" is very easy to understand, and its author seems each time to put just the right word in just the right place. In some other works of this kind (if their author's plans were carried out) it would require a very heavy outlay of money, which the poor farmer or gardener could in nowise afford for the purpose. The plans in this work do not call for any very great outlay of money, but such outlay as most men can afford who follow the business of either farming or gardening. I speak of farming and gardening both, because the reading of your book would benefit both.

I own a small farm; have lived nearly all my life

on a farm, and am deeply in love with farming as an occupation at once "the most ennobling and healthful" of any. A good garden is a great advantage to the farmer who gives a share of his time to its culture, but by many farmers it is often neglected. Of course, any book which helps in gardening would also help in farming.

There is another feature shown in your work, which makes me wish I were personally acquainted with its author; and that is the trustful leaving of all things in the hands of "Him in whom we live and move and have our being." Each chapter is introduced with a text—an appropriate beginning surely—and love to God and your fellow-man seems no small share of the whole work. I have derived great pleasure in the reading of the work, and great satisfaction in thinking its author was a child of God, and that, while he was instructing some how to sow seeds and cultivate them, he was himself sowing seeds of immortality which might spring up and bear fruit which never would decay. Now I trust I have not tired you, for less would not satisfy me. I hope we may meet at some future time, and may that hope become a certainty. We are both striving for a crown of glory, and may we both be so blest as to win and wear it.

JAMES A. FIELD.

Farmer, Defiance Co., O., Jan. 26, 1889.

WHAT TO DO,

—AND—

How to Be Happy While Doing It.

The above book, by A. I. Root, is a compilation of papers published in *GLEANINGS* in 1886, '7, and 8. It is intended to solve the problem of finding occupation for those scattered over our land, out of employment. The suggestions are principally about finding employment around your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. I think the book will be well worth the price, not only to those out of employment, but to any one who loves home and rural industries. Price in paper covers, 50 cts.; cloth, 75 cts. If wanted by mail, add 8 and 10c respectively.

A. I. ROOT, Medina, Ohio.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention *Gleanings*.) 1tfdb

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfdb

SAVE FREIGHT.
BUY YOUR SUPPLIES NEAR HOME AND
SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,
Box 11, Higginsville, Mo.
In responding to ads. advertisers mention *GLEANINGS*.

JAPANESE BUCKWHEAT!

By freight or express, not prepaid.

Per bu., \$2.00; per $\frac{1}{2}$ -bu., \$1.25; per peck, 75 cts.; 5 lbs., 50 cts; per lb. by mail post-paid, 25 cts. Address

John C. Gilliland,
Bloomfield, Greene Co., Ind.

B. J. MILLER & CO., NAPPANEE, IND.,

BEE - HIVES AND ITALIAN QUEENS.

4½x4½ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 1tfd

THE . BEST . HIVES FOR THE LEAST MONEY. BOTH SINGLE AND DOUBLE WALLED.

If you need any hives don't fail to send for my price list, as I make a specialty of hives, and think I have the best arranged hives on the market, at bottom prices. My hives take the Simplicity frame. 3tdb

J. A. ROE, Union City, Ind.

In responding to this advertisement mention GLEANINGS.

LOOK OUT!

One of the best bee locations in the Fruit Belt of Michigan. Small fruit-farm (44 acres) to sell—Bees and "fixings" cheap. For particulars address

J. O. SHEARMAN,

New Richmond, - 3tfd - Michigan.

In responding to this advertisement mention GLEANINGS.

BIG BUCKEYE FIELD CORN.

GOLD COIN SWEET CORN.



Our illustrated Annual of Tested SEEDS, BULBS, TOOLS, &c., mailed free to all seed buyers. Two Colored Plates. It tells all about SEEDS & Gardening. The best Guide. Prices Low. Seeds Reliable. Used by Thousands of Farmers and Gardeners and no complaints. Originators of Paragon, Acme, Perfection, Favorite, Beauty and other Tomatoes. A. W. LIVINGSTON'S SONS, P. O. Box 278, Columbus, O.

In responding to this advertisement mention GLEANINGS.

STRAW BLACK GOOSE RASPB DEW BERRIES CURRANTS & GRAPES.

Large, Late, Hardy, Prolific, Black RASPBERRY, Latest of all in Ripening.

FIRST-CLASS PLANTS * AT * LOW * RATES.

THEO. F. LONGENECKER,

Correspondence Solicited. 3tfd Dayton, Ohio.

In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheap. We are offering our choicest white one-piece 4½x4½ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfd

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

J. FORNCROOK & CO.,

MANUFACTURERS OF THE

"BOSS" ONE - PIECE SECTIONS,



Will furnish you, the coming season, ONE-PIECE SECTIONS as cheap as the cheapest. WRITE FOR PRICES.

Watertown, Wis., Jan. 1, 1889.

1-11d

In responding to this advertisement mention GLEANINGS.

FOR SALE.

About 20 Colonies of Good Italian Bees

IN ROOT'S PORTICO HIVE.

Will close out at a bargain. Reason for selling, away at school.

D. H. TOWNLEY.

4-5d

ELIZABETH, UNION CO., N. J.

NEARLY THIRTY TONS

—OF—

DADANT'S FOUNDATION

SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Vialon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; O. G. Collier, Fairbury, Neb., and numerous other dealers.

Write for free samples, and price list of bee supplies. We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

CHAS. DADANT & SON,

3btfd Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.



Bless Your Souls! My brother farmers, why pay 10 or 20 cts. for a seed catalogue, when you can receive one containing just as many and very probably more varieties and all new vegetables that are really valuable, for just **NOTHING**? It may have less paint about the covers, but, great Scott! we are not after paint, but seed, fresh and true to name, such as will make with a master's hand its own picture all over our farms and gardens; seed I am not afraid to **WARRANT** on the cover of my catalogue. Come, my fellow farmers, and join the thousands, who for thirty years have been users of my seed; why, we were a goodly company and having pleasant times together before the great majority of the present race of seedsmen (bless the boys!) had left their nurse's arms! Send for a catalogue.

JAMES J. H. GREGORY, Marblehead, Mass.

In responding to this advertisement mention GLEANINGS.

FOR THE SEASON OF 1889.

Headquarters in the South.

ELEVENTH ANNUAL CATALOGUE NOW READY.

The only steam-factory erected in the South, exclusively for the manufacture of Bee-Keepers' Supplies.

ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

with pure Italian queen, containing 3 pounds of bees when secured—in April and May, \$4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Eleventh Annual Catalogue.

1-3-5d

P. L. VIALLOIN,

Bayou Coula, Iberville Parish, La.

In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

A full line of supplies always on hand. Also Italian queens and bees at a very low price. Send for large illustrated price list.

A. F. Stauffer, Sterling, Ill.

In responding to this advertisement mention GLEANINGS.

IMPORTED QUEENS.

In May and June, each - - - - - \$2 00
In July and August, each - - - - - 1 80
In September and October, each - - - - - 1 40

Money must be sent in advance. No guarantee on shipments by mail. Queens sent by express (8 at least), which die in transit, will be replaced if returned in a letter.

1-11d CHAS. BIANCONCINI, Bologna, Italy.

In responding to this advertisement mention GLEANINGS.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY * ILLUSTRATED, &c.

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, Medina, O.

CARNIOLAN QUEENS A SPECIALTY.

Largest and Purest Carniolan Apiary in America. Send for descriptive circular and price list. Address ANDREWS & LOCKHART,

3tfd Pattens Mills, Washington Co., N. Y.

In responding to this advertisement mention GLEANINGS.

SEND NOW

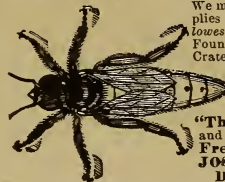
for my 1889 price list of supplies, 4-piece poplar and basswood sections at \$3.50 to \$3.00 per M. Poplar sections for the new Heddon hive a specialty. Price lists out Feb. 1st. H. P. LANGDON,

1-5d East Constable, Frank. Co., N. Y.

In responding to this advertisement mention GLEANINGS.

Western BEE-KEEPERS' Supply Factory.

We manufacture Bee-Keepers' supplies of all kinds, best quality at lowest prices. Hives, Sections, Foundation, Extractors, Smokers, Crates, Vells, Feeders, Clover Seeds, Buckwheat, etc. Imported Italian Queens. Queens and Bees. Sample Copy of our Bee Journal.



"The Western Bee-Keeper," and latest Catalogue mailed Free to Bee-Keepers. Address JOSEPH NYSEWANDER, DES MOINES, IOWA

In responding to this advertisement mention GLEANINGS.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 money-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it all with this Saw. It will do all you say it will."

Catalogue and Price List Free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

23tfd

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd JNO. VANDERVORT, Laceyville, Pa.

In responding to this advertisement mention GLEANINGS.

ON 30 DAYS' TRIAL.

THIS NEW ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body, while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail Circulars free. EGGLESTON TRUSS CO., Chicago, Ill.

In responding to this advertisement mention GLEANINGS.

SOUTHERN HEADQUARTERS

FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address

1tfd J. P. H. BROWN, Augusta, Ga.

In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE.

❧ BEE-KEEPERS' * SUPPLIES. ❧

QUALITY AND WORKMANSHIP UNSURPASSED.

We are prepared to furnish **Bee-Keepers** with **Supplies Promptly**, and with goods of uniform excellence, as heretofore. Our Hives all take the **Simplicity Frame**. The "**Falcon**" **Chaff Hive** and the "**Chautauqua**," with **Dead-Air Spaces**, are both giving universal satisfaction.

We manufacture a **Full Line of Bee-Keepers' Supplies**, including "**Falcon**" **Brand Foundation**, and gladly

FURNISH ESTIMATES, AND SOLICIT CORRESPONDENCE.

SEND * FOR * LARGE * ILLUSTRATED * PRICE * LIST * FOR * 1889 * FREE.

THE W. T. FALCONER MANUFACTURING CO.,

Jamestown, N. Y.

Successors to W. T. FALCONER.

❧ In responding to this advertisement mention GLEANINGS.

FOUNDATION.

We manufacture the best foundation, and after it is drawn out by the bees it is perfectly white. Made from selected wax. All orders filled promptly (in the season) or money returned by next mail.

Address for prices, etc.,
11tfdb

F. A. SALISBURY, Syracuse, N. Y.

❧ In responding to this advertisement mention GLEANINGS.

NEW YORK.

FOREIGN ORDERS SOLICITED.

NEW JERSEY.

EASTERN * DEPOT

(Bees.) —FOR— (Queens.)

EVERYTHING USED BY BEE-KEEPERS.

EXCLUSIVE MANUFACTURER OF THE

STANLEY AUTOMATIC HONEY-EXTRACTOR.

Dadant's Foundation, Wholesale and Retail.

WHITE POPLAR OR BASSWOOD SECTIONS.

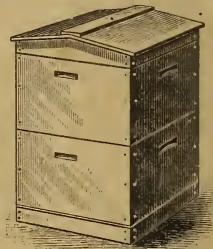
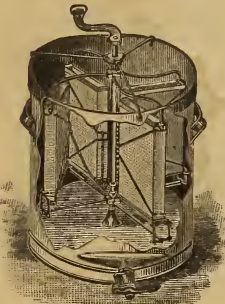
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